JOB NO.: TCS00975/18

CEDD CONTRACT AGREEMENT NO. EDO/04/2018 - ENVIRONMENTAL TEAM FOR CROSS BAY LINK, TSEUNG KWAN O

MONTHLY ENVIRONMENTAL MONITORING & AUDITING REPORT OF THE PROJECT – NOVEMBER 2019

PREPARED FOR
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT (CEDD)

Date	Reference No.	Prepared By	Certified By
13 December 2019	TCS00975/18/600/R0313v3		
		Martin Li (Environmental Consultant)	Tam Tak Wing (Environmental Team Leader)

Version	Date	Remarks
1	9 December 2019	First Submission
2	12 December 2019	Amended against IEC's comments
3	13 December 2019	Amended against IEC's comments

Our ref: ASCL-2018009

AECOM Asia Company Limited
8/F., Grand Central Plaza, Tower 2
138 Shatin Rural Committee Road
Shatin, New Territories, Hong Kong

Attention: Mr. Conrad NG

13 December 2019

Dear Sir,

Contract No. NE/2017/07
Cross Bay Link, Tseung Kwan O – Main Bridge and Associated Works
Monthly EM&A Report for November 2019

I refer to the email of the ET concerning the revised Monthly EM&A Report for November 2019 (Version 3) with Ref. No. TCS00975/18/600/R0313v3. We have no adverse comment on it and verify the captioned according to section 1.9 of Environmental Permit with No. EP-459-2013.

Yours faithfully,

Li Wai Ming Kevin
Independent Environmental Checker

cc. Mr. T.W. TAM (ETL)
Ms. Sheri S.Y. LEUNG (CEDD)

EXECUTIVE SUMMARY

ES01 Civil Engineering and Development Department (hereafter referred as "CEDD") is the Project Proponent and the Permit Holder of the Project Cross Bay Link, Tseung Kwan O (hereinafter referred as "the Project") which is a Designated Project to be implemented under Environmental Permit number EP-459/2013 (hereinafter referred as "the EP-459/2013" or "the EP").

ES02 AUES was awarded the CEDD Contract Agreement No. EDO/04/2018 - Environmental Team for Cross Bay Link, Tseung Kwan O (hereinafter called "the Service Contract"). The Services under the Service Contract is to provide environmental monitoring and audit (EM&A) services for the Works Contracts pursuant to the requirement of Environmental Team (ET) under the Approved EM&A Manual to ensure that the environmental performance of the Works Contracts comply with the requirement specified in the EM&A Manual and EIA Report of Agreement No. CE 43/2008 (HY) Cross Bay Link, Tseung Kwan O - Investigation and other relevant statutory requirements.

ES03 To facilitate management, the proposed Works of the project was divided into two Civil Engineering and Development Department (CEDD) Works contracts included *Contract 1 (Contract No. NE/2017/07)* and *Contract 2 (Contract No. NE/2017/08).* The date for commencement of Contract 1 was ***3rd December 2018*** while the date for commencement of Contract 2 was ***17th January 2019***.

ES04 According to the Approved Environmental Monitoring & Audit (EM&A) Manual, air quality, noise and water quality monitoring are required to be conducted during the construction phase of the Project. As part of the EM&A programme, baseline monitoring shall undertake before the Project construction work commencement to determine the ambient environment condition. The baseline air quality, background noise and water quality monitoring has been carried out between ***21st September 2018*** and ***13th November 2018*** at the designated and interim locations. The baseline monitoring report under the EP-459/2013 has been compiled by the ET and verified by Independent Environmental Checker (hereinafter the "IEC') prior submitted to EPD on ***19th November 2018*** for endorsement.

ES05 This is the **12th** Monthly EM&A report presenting the monitoring results and inspection findings for the reporting period from ***1st*** to ***30th November 2019*** (hereinafter 'the Reporting Period').

CONSTRUCTION WORKS CONDUCTED AT THE REPORTING MONTH

ES06 The major construction activities of Contract 1 (Contract No. NE/2017/07) undertaken in this Reporting Period are:-

- Piling works at Portion II
- Welding of steel bracket for precast shell installation at Portion II
- Fabrication of bottom deck panels, top deck panels and diaphragm panels at Portion II
- Precast shell fabrication at Portion II
- Structure works for E&M Building

ES07 The major construction activities of Contract 2 (Contract No. NE/2017/08) undertaken in this Reporting Period are:-

- Bored-Piling Works (Portion VI & VII & III)
- Pre-bored Socket H-Pile (Portion VI)
- Pre-drilling Works (Portion VI)
- Excavation Work (Portion VI)
- Drainage Installation Work (Portion III)
- Sheet pile Work (Portion VI)

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

ES08 Environmental monitoring activities under the EM&A program in this Reporting Period are summarized in the following table.

Table ES-4 Summary Environmental Monitoring Activities Undertaken in the Reporting Period

Issues	Environmental Monitoring Parameters / Inspection		Sessions
Air Quality	1-Hour TSP		15
	24-Hr TSP		6
Construction Noise	Leq (30min) Daytime		8
	Leq (15min) Evening		7
Water Quality	Marine Water Sampling(Note 1)		13
Inspection / Audit	Contract 1	ET Regular Environmental Site Inspection	4
		Joint site audit with Project Consultant and IEC	1
	Contract 2	ET Regular Environmental Site Inspection	4
		Joint site audit with Project Consultant and IEC	1

Note 1 Total sessions are counted by monitoring days

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES09 No air quality monitoring exceedance was recorded in this Reporting Period. No daytime construction noise monitoring exceedance was recorded while five (5) evening additional construction noise monitoring exceedances were recorded in this Reporting Period. For marine water quality monitoring, one (1) Action Level and three (3) Limit Level exceedances for the parameter Suspended Solid were recorded in the reporting period. NOEs were issued to notify EPD, IEC, the Contractor and the Project Consultant. The statistics of environmental exceedance and investigation of exceedance are summarized in the following table.

Table ES-5 Summary Environmental Monitoring Parameter Exceedance in the Reporting Period

Environmental Issues	Monitoring Parameters	Action Level	Limit Level	Event & Action	
				Investigation Results	Corrective Actions
Air Quality	1-Hour TSP	0	0	--	--
	24-Hr TSP	0	0	--	--
Construction Noise	Leq_{30min} Daytime	0	0	--	--
	Leq_{15min} Evening	0	**5**	Not project related	NA
Water Quality (Marine Water)	DO	0	0	--	--
	Turbidity	0	0	--	--
	SS	**1**	**3**	Not project related	NA

ES10 For the marine water and evening construction noise monitoring exceedances recorded in the reporting period, investigations were carried out and it was considered that the exceedances recorded are unlikely caused by the Project.

ENVIRONMENTAL COMPLAINT

ES11 No environmental complaint was recorded in this Reporting Period for the Project. The statistics of environmental complaint are summarized in the following table.

Table ES-6 Summary Environmental Complaint Records in the Reporting Period

Reporting Period	Contract	Environmental Complaint Statistics			Related with the Works Contract(s)
		Frequency	Cumulative	Complaint Nature	
1 – 30 November 2019	1	0	1	NA	NA
	2	0	0	NA	NA

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES12 No environmental summons or prosecutions was received in this Reporting Period for the Project. The statistics of environmental summons or prosecutions are summarized in the following tables.

Table ES-7 Summary Environmental Summons Records in the Reporting Period

Reporting Period	Contract	Environmental Summons Statistics			Related with the Works Contract(s)
		Frequency	Cumulative	Complaint Nature	
1 – 30 November 2019	1	0	0	NA	NA
	2	0	0	NA	NA

Table ES-8 Summary Environmental Prosecutions Records in the Reporting Period

Reporting Period	Contract	Environmental Prosecution Statistics			Related with the Works Contract(s)
		Frequency	Cumulative	Complaint Nature	
1 – 30 November 2019	1	0	0	NA	NA
	2	0	0	NA	NA

REPORTING CHANGE

ES13 There is no reporting change made for this monthly report.

SITE INSPECTION BY EXTERNAL PARTIES

ES14 No site inspection was undertaken by AFCD and EPD within the Reporting Period.

FUTURE KEY ISSUES

ES15 Due to the dry and windy season has begun in Hong Kong, the Contractors were reminded that all the works to undertaking must be fulfill environmental statutory requirement, especially construction dust come from working sites of the Project.

ES16 In regards to the marine works, special attention should be paid on excavation works for the bridge pier foundations underway in which water quality mitigation measures such as erection of silt curtain should be properly implemented and maintained.

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1. INTRODUCTION

1.1 PROJECT BACKGROUND

1.1.1 Civil Engineering and Development Department (hereafter referred as "CEDD") is the Project Proponent and the Permit Holder of the Project Cross Bay Link, Tseung Kwan O (hereinafter referred as "the Project") which is a Designated Project to be implemented under Environmental Permit number EP-459/2013 (hereinafter referred as "the EP-459/2013" or "the EP").

1.1.2 AUES was awarded the CEDD Contract Agreement No. EDO/04/2018 - Environmental Team for Cross Bay Link, Tseung Kwan O (hereinafter called "the Service Contract"). The Services under the Service Contract is to provide environmental monitoring and audit (EM&A) services for the Works Contracts pursuant to the requirement of Environmental Team (ET) under the Approved EM&A Manual to ensure that the environmental performance of the Works Contracts comply with the requirement specified in the EM&A Manual and EIA Report of Agreement No. CE 43/2008 (HY) Cross Bay Link, Tseung Kwan O - Investigation and other relevant statutory requirements.

1.1.3 To facilitate management, the proposed Works of ***Cross Bay Link, Tseung Kwan O*** (hereinafter called "the Project') was divided into two Civil Engineering and Development Department (CEDD) Works contracts included *Contract 1 (Contract No. NE/2017/07)* and *Contract 2 (Contract No. NE/2017/08).* The details of each contract Works are summarized below and the delineation of each contract is shown in ***Appendix A***.

Contract 1 (Contract No. NE/2017/07)

(i) 400m section of marine viaducts of steel deck sections including the Eternal Arch Bridge;
(ii) 600m section of marine viaducts of concrete deck sections;
(iii) An E&M Plantroom and associated building services; and
(iv) E&M provisions.

Contract 2 (Contract No. NE/2017/08)

(i) Elevated deck structures along Road D9;
(ii) A 210m section of cycle track and footpath ramp bridge;
(iii) A 630m section of noise semi-enclosure covering the entire length of Road D9, and;
(iv) Lift, staircase, modification of existing seawall along Road D9, landscaping and miscellaneous works.

1.1.4 The date for commencement of Contract 1 is ***3rd December 2018*** while the date for commencement of Contract 2 is ***17th January 2019***.

1.1.5 As part of the EM&A programme, baseline monitoring shall be undertaken before the Project construction work commencement to determine the ambient environmental condition. The baseline air quality, background noise and water quality monitoring has been carried out between ***21st September 2018*** and ***13th November 2018*** at the designated and interim locations. The baseline monitoring report under the EP-459/2013 has been compiled by the ET and verified by Independent Environmental Checker (hereinafter the "IEC') prior submitted to EPD on ***19th November 2018*** for endorsement.

1.1.6 This is the **12th** Monthly EM&A report presenting the monitoring results and inspection findings for the reporting period from ***1st*** to ***30th November 2019*** (hereinafter 'the Reporting Period').

1.2 REPORT STRUCTURE

1.2.1 The Environmental Monitoring and Audit (EM&A) Monthly Report is structured into the following sections:-

Section 1	*Introduction*
Section 2	*Project Organization and Construction Progress*
Section 3	*Summary of Impact Monitoring Requirements*
Section 4	*Air Quality Monitoring*
Section 5	*Construction Noise Monitoring*

2. PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS AND SUBMISSION

2.1 PROJECT ORGANIZATION

2.1.1 The project organization is shown in ***Appendix B***. The responsibilities of respective parties are:

The Project Consultant

2.1.2 The Project Consultant (hereinafter "the Consultant") is responsible for overseeing the construction works and for ensuring that the works are undertaken by the Contractor in accordance with the specification and contract requirements. The duties and responsibilities of the Consultant with respect to EM&A are:

- Monitor the Contractors' compliance with contract specifications, including the implementation and operation of the environmental mitigation measures and their effectiveness
- Monitor Contractors', ET's and IEC's compliance with the requirements in the Environmental Permit (EP) and EM&A Manual
- Facilitate ET's implementation of the EM&A programme
- Participate in joint site inspection by the ET and IEC
- Oversee the implementation of the agreed Event / Action Plan in the event of any exceedance
- Adhere to the procedures for carrying out complaint investigation

The Contractor(s) of Works Contract(s)

2.1.3 There will be one contractor for each individual works contract. The Contractor(s) should report to the Consultant. The duties and responsibilities of the Contractor are:

- Comply with the relevant contract conditions and specifications on environmental protection
- Participate in the site inspections by the ET and IEC, and undertake any corrective actions
- Provide information / advice to the ET regarding works programme and activities which may contribute to the generation of adverse environmental impacts
- Submit proposals on mitigation measures in case of exceedances of Action and Limit levels in accordance with the Event / Action Plans
- Implement measures to reduce impact where Action and Limit levels are exceeded
- Adhere to the procedures for carrying out complaint investigation

Environmental Team (ET)

2.1.4 ET shall not be in any way an associated body of the Contractor(s) and employed by the Permit Holder (i.e., CEDD) to conduct the EM&A programme. The ET should be managed by the ET Leader. The ET Leader shall be a person who has at least 7 years' experience in EM&A and has relevant professional qualifications. Suitable qualified staff should be included in the ET, and resources for the implementation of the EM&A programme should be allocated in time under the Contract(s), to enable fulfillment of the Project's EM&A requirements as specified in the EM&A Manual during construction of the Project. ET shall report to the Project Proponent and the duties shall include:

- Conduct baseline monitoring, impact monitoring and post-construction monitoring and the associated in-situ and laboratory tests to monitor various environmental parameters as required in the EM&A Manual and the EP
- Analyze the environmental monitoring and audit data, review the success of EM&A programme and the adequacy of mitigation measures implemented, confirm the validity of the EIA predictions and identify any adverse environmental impacts arising
- Carry out regular site inspection to investigate and audit the Contractors' site practice, equipment/plant and work methodologies with respect to pollution control and environmental mitigation, and effect proactive action to pre-empt problems
- Monitor compliance with conditions in the EP, environmental protection, pollution prevention and control regulations and contract specifications

- Audit environmental conditions on site
- Report on the environmental monitoring and audit results to EPD, the Consultant, the IEC and Contractor(s) or their delegated representatives
- Recommend suitable mitigation measures to the Contractor in the case of exceedance of Action and Limit levels in accordance with the Event and Action Plans
- Liaise with the IEC on all environmental performance matters and timely submit all relevant EM&A proforma for approval by IEC
- Advise the Contractor(s) on environmental improvement, awareness, enhancement measures etc., on site
- Adhere to the procedures for carrying out complaint investigation
- Set up a dedicated web site where the project information, all environmental monitoring and audit data and reports described in Condition 5.2 of the EP, and all finalized submissions and plans required under the EP are to be placed for public inspection
- Upload the environmental monitoring results to the dedicated web site in accordance with requirements of the EP and EM&A Manual
- To carry out the Operational Phase Landfill Gas monitoring during effluent drainage system maintenance for one year

Independent Environmental Checker (IEC)

2.1.5 IEC will be employed for this Project. The Independent Environmental Checker (IEC) should not be in any way an associated body of the Contractor(s) or the ET for the Project. The IEC should be employed by the Permit Holder (i.e., CEDD) prior to the commencement of the construction of the Project. The IEC should have at least 7 years' experience in EM&A and have relevant professional qualifications. The duty of IEC should be:

- Provide proactive advice to the Project Consultant and the Project Proponent on EM&A matters related to the project, independent from the management of construction works, but empowered to audit the environmental performance of construction
- Review and audit all aspects of the EM&A programme implemented by the ET
- Review and verify the monitoring data and all submissions in connection with the EP and EM&A Manual submitted by the ET
- Arrange and conduct regular, at least monthly site inspections of the works during construction phase, and ad hoc inspections if significant environmental problems are identified
- Check compliance with the agreed Event / Action Plan in the event of any exceedance
- Check compliance with the procedures for carrying out complaint investigation
- Check the effectiveness of corrective measures
- Feedback audit results to ET by signing off relevant EM&A proforma
- Check that the mitigation measures are effectively implemented
- Report the works conducted, the findings, recommendation and improvement of the site inspections, after reviewing ET's and Contractor's works, and advices to the Project Consultant and Project Proponent on a monthly basis

2.2 CONSTRUCTION PROGRESS

2.2.1 3-month rolling construction program of the each Works Contract is enclosed in ***Appendix C***; and the major construction activities undertaken in the Reporting Period is presented in below sub-sections.

Contract 1 (Contract No. NE/2017/07)

2.2.2 The major construction activities of Contract 1 undertaken in this Reporting Period are:-

- Piling works at Portion II
- Welding of steel bracket for precast shell installation at Portion II
- Fabrication of bottom deck panels, top deck panels and diaphragm panels at Portion II
- Precast shell fabrication at Portion II
- Structure works for E&M Building

Contract 2 (Contract No. NE/2017/08)

2.2.3 The major construction activities of Contract 2 undertaken in this Reporting Period are:-

- Bored-Piling Works (Portion VI & VII & III)
- Pre-bored Socket H-Pile (Portion VI)
- Pre-drilling Works (Portion VI)
- Excavation Work (Portion VI)
- Drainage Installation Work (Portion III)
- Sheet pile Work (Portion VI)

2.3 SUMMARY OF ENVIRONMENTAL SUBMISSIONS

2.3.1 The required documents list below shall be to submit to EPD for retention:

Table 2-1 Documents Submission under Environmental Permit Requirement

EP condition	Submission to EPD	Requirement	Situation
1.11	Commencement date of construction of the Project	no later than 1 month prior to the commencement of construction of the Project	• Contract 1 notified EPD on 19 Oct 2018 • Contract 2 notified EPD on 12 Dec 2018
2.3	The date of setting up the Community Liaison Group (CLG), the membership, the terms of reference and the contact details	At least 1 month before the commencement of construction of the Project	• CLG setting has submitted to EPD on 9 Oct 2018
2.4	Management Organization of Main Construction Companies	No later than 2 weeks before the commencement of construction of the Project	• Management Organization of Contract 1 was submitted to EPD on 2 October 2018 • Management Organization of Contract 2 was submitted to EPD on 12 December 2018
2.5	Waste Management Plan (WMP)	No later than 1 month before commencement of construction of the Project	• WMP of Contract 1 was submitted to EPD in 11 October 2018 • WMP of Contract 2 was submitted to EPD in 14 December 2018
2.6	Landscape Mitigation Plan (LSMP)	No later than 1 month before commencement of construction of the Project	• LSMP was submitted on 1 Nov 2018
2.7	Detailed Qualitative Landfill Gas Hazards Assessment (QLGHA)	No later than 1 month before commencement of construction of the Project	• QLGHA of the Project was submitted to EPD on 1 November 2018

2.3.2 Upon completed baseline monitoring, a Baseline Monitoring Report was verified by IEC on 19 November 2018 and submitted to EPD on that day for endorsement.

2.3.3 The notification of Project dedicated web site to EPD was made on 9 January 2019 (http://www.envcbltko.hk/).

2.3.4 Summary of the relevant permits, licenses, and/or notifications on environmental protection for the Project are presented in ***Table 2-2***.

Table 2-2 Status of Environmental Licenses and Permits of the Project Works (Contract 1)

Item	Description	License/Permit Status			
		Permit no./ Account no./ Ref. no.	Valid Period		Status
			From	To	
1	Notification pursuant to Air pollution Control (Construction Dust) Regulation	--	--	--	Notified on 11 July 2018
2	Chemical Waste Producer Registration	5213-839-C1232-19	28 Aug 2018	N/A	--
3	Water Pollution Control Ordinance - Discharge License	WT00032842-2018	1 Mar 2019	31 Mar 2024	Valid until 31 March 2024
		WT00034178-2019	15 Jul 2019	31 Jul 2024	Valid until 31 July 2024
4	Billing Account for Disposal of Construction Waste	7031412	24 Jul 2018	N/A	--
	Billing Account for Disposal of Construction Waste (through Vessel delivering)	7032666	07 Nov 2019	07 Feb 2020	Valid until 07 Feb 2020
5	Marine Dumping Permit	EP-MD-20-080	30 Oct 2019	29 Apr 2020	Valid until 29 Apr 2020
6	Construction Noise Permit	GW-RE0886-19	5 Nov 2019	29 Dec 2019	Valid until 29 Dec 2019

Remark: Evening marine work at Portion II for Contract 1 was scheduled from 4 – 7, 11 – 16, 18 – 23 and 25 - 30 November 2019

Table 2-3 Status of Environmental Licenses and Permits of the Project Works (Contract 2)

Item	Description	License/Permit Status			
		Permit no./ Account no./ Ref. no.	Valid Period		Status
			From	To	
1	Notification pursuant to Air pollution Control (Construction Dust) Regulation	--	--	--	Notified on 31 October 2018
2	Chemical Waste Producer Registration	5213-839-B2500-04	22 Nov 2018	N/A	--
3	Water Pollution Control Ordinance - Discharge License	WT00034244-2019	8 Jul 2019	31 Jul 2024	Valid until 31 July 2024
4	Billing Account for Disposal of Construction Waste	7032702	8 Nov 2018	N/A	--
5	Marine Dumping Permit	EP/MD/20-073	24 Oct 2019	23 Apr 2020	Valid until 23 April 2020
6	Construction Noise Permit	GW-RE0927-19	14 Nov 2019	30 Apr 2020	Valid until 30 Apr 2020

Remark: No evening work and night work was carried out for Contract 2

3. SUMMARY OF ENVIRONMENTAL MONITORING PROGRAMMES AND REQUIREMENTS

3.1 GENERAL

3.1.1 The Environmental Monitoring and Audit Programmes and requirements are set out in the Approved EM&A manual. Environmental issues such as air quality, construction noise and water quality were identified as the key issues during the construction phase of the Project. A summary of EM&A programmes and requirements are presented in the sub-sections below.

3.2 MONITORING PARAMETERS

3.2.1 Monitoring parameters of air quality, noise and water quality are summarized in ***Table 3-1***.

Table 3-1 Summary of EM&A Requirements

Environmental Issue	Parameters
Air Quality	• 1-hour TSP by Real-Time Portable Dust Meter; and • 24-hour TSP by High Volume Air Sampler
Noise	• Leq (30min) in six consecutive Leq(5 min) between 07:00-19:00 on normal weekdays • Supplementary information for data auditing, statistical results such as L_{10} and L_{90} shall also be obtained for reference.
Water Quality	• In-situ measurement – Dissolved Oxygen (DO) concentration (mg/L) & saturation (%), pH, Salinity (mg/L), Temperature (ºC) and Turbidity (NTU); and • Laboratory analysis – SS (mg/L)

3.3 MONITORING LOCATIONS

Air Quality and Construction Noise

3.3.1 According to the Approved EM&A Manual Section 5.4 and Section 6.3, three (3) representative air sensitive receivers (ASR) and four (4) representative noise sensitive receivers were designated as monitoring stations. The designated air quality and noise monitoring locations are listed in ***Table 3-2*** and ***Table 3-3,*** and illustrated in ***Appendix D***.

Table 3-2 Designated Air Quality Monitoring Location recommended in EM&A Manual

ID	Location in the EM&A Manual	Currently Situation
AM1	Tung Wah Group of Hospitals Aided Primary School & Secondary School	Not yet construct
AM2	Lohas Park Stage 2 (Planned Development in Area 86)	Under Construction
AM3	Lohas Park Stage 3 (Planned Development in Area 86)	Under Construction

Table 3-3 Designated Construction Noise Monitoring Location recommended by EM&A Manual

ID	Location	Currently Situation
CNMS-1	Lohas Park Stage 1(Planned Development in Area 86, Package 4) (Southeast facade)	Available for resident occupation in November 2019
CNMS-2	Lohas Park Stage 1 (Planned Development in Area 86, Package 6) (Southeast facade)	Under Construction
CNMS-3	Lohas Park Stage 3 (Planned Development in Area 86,Package 11) (West facade)	Under Construction
CNMS-4	Tung Wah Group of Hospitals Aided Primary School & Secondary School (Southwest facade)	Not yet construct

3.3.2 As observed and confirmed by ET and IEC during the joint site visit on 29th August 2018, the designated air quality and noise monitoring locations are under construction or yet to construct. It is considered that these designated locations are not appropriate to perform air quality and noise monitoring. In this regard, alternative locations were proposed as interim arrangement to carry out air quality and noise monitoring before occupation of the designated monitoring location. A letter enclosed with the alternative location proposal and IEC verification (Our Ref: TCS00975/18/300/L0038) was sent to EPD on 19th October 2018 and the proposal was agreed by

EPD. Therefore, air quality and construction noise impact monitoring would be performed at the agreed alternative locations until the designated sensitive receivers occupied and granted the premises.

3.3.3 The designated and interim alternative monitoring location for impact air quality and noise monitoring in the Reporting Period are summarized in Table 3-4 and illustrated in ***Appendix D***.

Table 3-4 Designated and interim alternative location for air quality and noise monitoring in the Reporting Period

Location ID	Monitoring Parameter	Location
AM4	1-Hour TSP Air Quality	Podium of Lohas Park Phase 2A (Le Prestige)
AM5	24-Hour TSP Air Quality	Boundary of Site Office near Junction of Wan Po Road and Wan O Road
CNMS-1	Noise (L_{eq}, L_{10} & L_{90})	Podium of Lohas Park Package 4
CNMS-5	Noise (L_{eq}, L_{10} & L_{90})	Podium of Lohas Park Phase 2A (Le Prestige)

Remark: Since 24-Hour TSP Air Quality monitoring is not granted at AM4 Lohas Park Phase 2A, the 24-Hour TSP monitoring was therefore proposed at AM5 which is located at the boundary of the project site office.

Water Quality

3.3.4 According to Table 7.1 of the approved EM&A Manual Section 7.4, two Control Stations (C3 & C4), six (6) sensitive receivers (CC1, CC2, CC3, CC4, CC13 & SWI1) and one (1) Gradient station (I1) are recommended to perform water quality monitoring. Details and coordinate of these water quality monitoring stations are described in ***Table 3-5*** and the locations is shown in ***Appendix D.***

Table 3-5 Location of Water Quality Monitoring Station

Station	Coordinates		Description
	Easting	Northing	
CC1	843201	816416	**Sensitive Receiver** – Coral Sites at Chiu Keng Wan
CC2	844076	817091	**Sensitive Receiver** – Coral Sites at Junk Bay
CC3	844606	817941	**Sensitive Receiver** – Coral Sites at Junk Island
CC4	845444	815595	**Sensitive Receiver** – Coral Sites at Fat Tong Chau West
CC13	844200	817495	**Sensitive Receiver** – Coral Sites at Junk Bay near Chiu Keng Wan
SWI1	845512	817442	**Sensitive Receiver** – Tseung Kwan O Salt Water Intake
C3	843821	816211	**Control Station** (Ebb Tide) – within Junk Bay
C4	844621	815770	**Control Station** (Flood Tide) – within Junk Bay
I1	844602	817675	**Gradient Station** – in between Lam Tin Tunnel (LTT) and CBL

3.4 MONITORING FREQUENCY AND PERIOD

3.4.1 To according with the approved *EM&A Manual*, impact monitoring requirements are presented as follows.

Air Quality Monitoring

3.4.2 Air quality impact monitoring frequency is as follows:

- Once every 6 days of 24-hour TSP and 3 times of 1-hour TSP monitoring; during course of works throughout the construction period

Construction Noise Monitoring

3.4.3 Construction noise monitoring frequency is as follows:

- One set of $Leq_{(30min)}$ measurements in a weekly basis between 07:00 and 19:00 hours on normal weekdays during course of works as throughout the construction period
- If construction works are extended to include works during the hours of 1900-0700, additional weekly impact monitoring shall be carried out during evening and night-time works. Applicable permits under the NCO shall be obtained by the Contractor.

Water Quality (Marine Water) Monitoring

3.4.4 Marine water impact monitoring frequency is as follows:

- Three days a week, at mid ebb and mid flood tides during course of pile excavation works for the bridge pier foundations underway. Moreover, the intervals between 2 consecutive sets of monitoring day shall not be less than 36 hours.

3.5 MONITORING EQUIPMENT

Air Quality Monitoring

3.5.1 The 24-hour and 1-hour TSP levels shall be measured by following the standard high volume sampling method as set out in the *Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50)*, Appendix *B*. If the ET proposes to use a direct reading dust meter to measure 1-hour TSP levels, it shall submit sufficient information to the IEC to prove that the instrument is capable of achieving a comparable results to the HVS. The instrument should be calibrated regularly, and the 1-hour sampling shall be determined on yearly basis by the HVS to check the validity and accuracy of the results measured by direct reading method. The filter paper of 24-hour TSP measurement shall be determined by HOKLAS accredited laboratory. The equipment used for air quality monitoring is listed in ***Table 3-6***.

Table 3-6 Air Quality Monitoring Equipment

Equipment		Model
24-hour TSP	High Volume Air Sampler	TISCH High Volume Air Sampler, HVS Model TE-5170
	Calibration Kit	TISCH Model TE-5025A (S/N: 438320)
1- hour TSP	Portable Dust Meter	Laser Dust Monitor Sibata LD-3B Laser Dust Monitor (S/N: 3Y6503)

Noise Monitoring

3.5.2 Sound level meter in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications shall be used for carrying out the noise monitoring. The sound level meter shall be checked using an acoustic calibrator. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in ms^{-1}. Noise equipment will be used for impact monitoring is listed in ***Table 3-7***.

Table 3-7 Construction Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	Rion NL-52 (S/N:00464681)
Calibrator	Rion NC-74 (S/N:34657231)
Portable Wind Speed Indicator	Anemometer AZ Instrument 8908

Water Quality Monitoring

3.5.3 For water quality monitoring, the equipment should fulfill the requirement under the Approved *EM&A Manual Section 7.2*. The requirement is summarized below:

- ***Dissolved Oxygen and Temperature Measuring Equipment*** – The instrument should be a portable, weatherproof dissolved oxygen measuring instrument completed with cable, sensor, comprehensive operation manuals, and should be operable from a DC power source. It should be capable of measuring: dissolved oxygen levels in the range of 0-20 mg/L and 0-200% saturation; and a temperature of 0-45 degrees Celsius. It should have a membrane electrode with automatic temperature compensation complete with a cable of not less than 35 m in length. Sufficient stocks of spare electrodes and cable should be available for replacement where necessary.
- ***Turbidity Measurement Equipment*** – The instrument shall be a portable, weatherproof turbidity-measuring instrument complete with comprehensive operation manual. The equipment shall use a DC power source. It shall have a photoelectric sensor capable of measuring turbidity between 0-1000 NTU.
- ***Salinity Measurement Instrument*** – A portable salinometer capable of measuring salinity in the range of 0-40 ppt should be provided for measuring salinity of the water at each

monitoring location.

- ***Water Depth Detector*** – A portable, battery-operated echo sounder should be used for the determination of water depth at each designated monitoring station. A detector affixed to the bottom of the works boat, if the same vessel is to be used throughout the monitoring programme, is preferred.
- ***Positioning Device*** – hand-held or boat-fixed type digital Global Positioning System (GPS) with way point bearing indication or other equipment instrument of similar accuracy, should be provided and used during water quality monitoring to ensure the monitoring vessel is at the correct location before taking measurements.
- ***Water Sampling Equipment*** – A water sampler, consisting of a transparent PVC or glass cylinder of not less than two liters, which can be effectively sealed with cups at both ends, should be used. The water sampler should have a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler is at the selected water depth.

3.5.4 Equipment used for water quality impact monitoring is listed in ***Table 3-8***.

Table 3-8 Water Monitoring Equipment

Equipment	Model
A Digital Global Positioning System	GPS12 Garmin
Water Depth Detector	Eagle Sonar CUDA 300
Water Sampler	A 2-litre transparent PVC cylinder with latex cups at both ends
Thermometer & DO meter	YSI ProDSS Digital Sampling System Water Quality Meter (S/N: 15H102620/15H103928)
pH meter	
Turbidimeter	
Salinometer	
Sample Container	High density polythene bottles (provided by laboratory)
Storage Container	'Willow' 33-litter plastic cool box with Ice pad

3.6 MONITORING PROCEDURES

Air Quality

1-hour TSP

3.6.1 The 1-hour TSP monitor was a brand named "*Sibata LD-3 Laser Dust monitor Particle Mass Profiler & Counter*" which is a portable, battery-operated laser photometer. The 1-hour TSP meter provides a real time 1-hour TSP measurement based on 90° light scattering. The 1-hour TSP monitor consists of the following:

(a.) A pump to draw sample aerosol through the optic chamber where TSP is measured;

(b.) A sheath air system to isolate the aerosol in the chamber to keep the optics clean for maximum reliability; and

(c.) A built-in data logger compatible with Windows based program to facilitate data collection, analysis and reporting.

24-hour TSP

3.6.2 The equipment used for 24-hour TSP measurement is TISCH, Model TE-5170 TSP High Volume Air Sampler, which complied with *EPA Code of Federal Regulation, Appendix B to Part 50*. The High Volume Air Sampler (HVS) consists of the following:

(a.) An anodized aluminum shelter;

(b.) A 8"x10" stainless steel filter holder;

(c.) A blower motor assembly;

(d.) A continuous flow/pressure recorder;

(e.) A motor speed-voltage control/elapsed time indicator;

(f.) A 7-day mechanical timer, and

(g.) A power supply of 220v/50 Hz

3.6.3 For HVS for 24-hour TSP monitoring, the HVS is mounted in a metallic cage with a top for protection and also it is sat on the existing ground or the roof of building. The flow rate of the HVS between 0.6m^3/min and 1.7m^3/min will be properly set in accordance with the

manufacturer's instruction to within the range recommended in *EPA Code of Federal Regulation, Appendix B to Part 50*. Glass Fiber Filter 8" x 10" of TE-653 will be used for 24-Hour TSP monitoring and would be supplied by laboratory. The general procedures of sampling are described as below:-

- A horizontal platform with appropriate support to secure the samples against gusty wind should be provided;
- No two samplers should be placed less than 2 meters apart;
- The distance between the sampler and an obstacle, such as building, must be at least twice the height that the obstacle protrudes above the sample;
- A minimum of 2 meters of separation from any supporting structure, measured horizontally is required;
- Before placing any filter media at the HVS, the power supply will be checked to ensure the sampler work properly;
- The filter paper will be set to align on the screen of HVS to ensure that the gasket formed an air tight seal on the outer edges of the filter. Then filter holder frame will be tightened to the filter hold with swing bolts. The holding pressure should be sufficient to avoid air leakage at the edge.
- The mechanical timer will be set for a sampling period of 24 hours (00:00 mid-night to 00:00 mid-night next day). Information will be recorded on the field data sheet, which would be included the sampling data, starting time, the weather condition at current and the filter paper ID with the initial weight;
- After sampling, the filter paper will be collected and transfer from the filter holder of the HVS to a sealed envelope and sent to a local HOKLAS accredited laboratory for quantifying.

3.6.4 All the sampled 24-hour TSP filters will be kept in normal air conditioned room conditions, i.e. 70% HR (Relative Humidity) and 25^{o}C, for six months prior to disposal.

3.6.5 The HVS used for 24-hour TSP monitoring will be calibrated in two months interval for in accordance with the manufacturer's instruction using the NIST-certified standard calibrator (Tisch Calibration Kit Model TE-5025A) to establish a relationship between the follow recorder meter reading in cfm (cubic feet per minute) and the standard flow rate, Qstd, in m^3/min. Motor brushes of HVS will be regularly replaced. The calibration certificates of the air quality monitoring equipment used for the impact monitoring and the HOKLAS accredited certificate of laboratory was provided in Appendix G.

Noise Monitoring

3.6.6 As referred to in the Technical Memorandum (TM) issued under the NCO, sound level meters in compliance with the International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications shall be used for carrying out the noise monitoring. Immediately prior to and following each noise measurement the accuracy of the sound level meter shall be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0 dB.

3.6.7 All noise measurements will be performed with the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level (Leq). $Leq_{(30\ min)}$ in six consecutive $Leq_{(5\ min)}$ measurements will be used as the monitoring parameter for the time period between 07:00-19:00 hours on weekdays throughout the construction period.

3.6.8 The sound level meter will be mounted on a tripod at a height of 1.2 m and placed at the assessment point and oriented such that the microphone is pointed to the site with the microphone facing perpendicular to the line of sight. The windshield will be fitted for all measurements. Where a measurement is to be carried out at a building, the assessment point would normally be at a position 1 m from the exterior of the building façade. Where a measurement is to be made for noise being received at a place other than a building, the assessment point would be at a position 1.2 m above the ground in a free-field situation, i.e. at least 3.5 m away from reflective surfaces

such as adjacent buildings or walls.

3.6.9 Immediately prior to and following each noise measurement the accuracy of the sound level meter will be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements will be accepted as valid only if the calibration level from before and after the noise measurement agrees to within 1.0 dB.

3.6.10 Noise measurements will not be made in fog, rain, wind with a steady speed exceeding 5m/s or wind with gusts exceeding 10m/s. The wind speed will be checked with a portable wind speed meter capable of measuring the wind speed in m/s.

3.6.11 The sound level meter and calibrator are calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme at yearly basis. The calibration certificates of noise monitoring equipment used for the impact monitoring was provided in Appendix G.

Marine Water Quality

3.6.12 Marine water quality monitoring would be conducted at all designated locations in accordance with Table 7.1 of the approved EM&A Manual. The procedures of water sampling, in-situ measurement and chemical analysis are described as below:

- A Global Positioning System (GPS) will be used to ensure that the correct location was selected prior to sample collection. A portable, battery-operated echo sounder was used for the determination of water depth at each designated monitoring station.
- The marine water sampler will be lowered into the water body at a predetermined depth. The trigger system of the sampler is activated with a messenger and opening ends of the sampler are closed accordingly then the sample of water is collected.
- During the sampling, the sampling container will be rinsed to use a portion of the marine water sample before the water sample is transferred to the container. Upon sampling completion, the container will be sealed with a screw cap.
- Before the sampling process, general information such as the date and time of sampling, weather condition and tidal condition as well as the personnel responsible for the monitoring will be recorded on the monitoring field data sheet.
- In-situ measurement including water temperature, turbidity, dissolved oxygen, salinity, pH and water depth will be recorded at the identified monitoring station and depth. At each station, marine water samples will be collected at three depths: 1m below water surface, 1m above sea bottom and at mid-depth when the water depth exceeds 6m. Samples at 1m below water surface and 1m above sea bottom will be collected when the water depth is between 3m and 6m. And sample at mid-depth will be taken when the water depth is below 3m.
- For the in-situ measurement, two consecutive measurements of sampling depth, temperature, dissolved oxygen, salinity, turbidity and pH concentration will be measured at the sea. The YSI ProDSS Multifunctional Meter will be retrieved out of the water after the first measurement and then re-deployed for the second measurement. Where the difference in the value between the first and second readings of each set is more than 25% of the value of the first reading, the reading is discarded and further readings is taken.
- Marine water sample will be collected by using a water sampler. The high-density polythene bottles will be filled after the water sample collected from the sea. Before the water sample being fills into the sampling bottles, the sampling bottles will be pre-rinsed with the same water sample. The sampling bottles will then be packed in cool-boxes (cooled at $4^{O}C$ without being frozen), and delivered to HOKLAS accredited laboratory for the chemical analysis as followed APHA *Standard Methods for the Examination of Water and Wastewater* 19ed 2540D, unless otherwise specified.

3.6.13 Before each round of monitoring, the dissolved oxygen probe will be calibrated by wet bulb method; a zero check in distilled water will be performed with the turbidity and salinity probes. The turbidity probe also will be checked with a standard solution of known NTU and known

value of the pH standard solution were used to check the accuracy of pH value before each monitoring day. Moreover, all in-situ measurement equipment used marine water monitoring will be calibrated at three months interval.

Laboratory Analysis

3.6.14 All water samples included the duplicate samples, was tested with chemical analysis as specified in the EM&A Manual by a HOKALS accredited laboratory - ALS Technichem (HK) Pty Ltd. The chemicals analysis method and reporting limit show ***Table 3-9***.

Table 3-9 Testing Method and Reporting Limit of the Chemical Analysis

Parameter	ALS Method Code	In-house Method Reference (1)	Reporting Limit
Total Suspended Solids	EA025	APHA 2540D	1 mg/L

Note:
1. The exact method shall depend on the laboratory accredited method. APHA = Standard Methods for the Examination of Water and Wastewater by the American Public Health Association.

3.6.15 The determination works will start within 24 hours after collection of the water samples or within the holding time as advised by the laboratory.

Meteorological Information

3.6.16 The meteorological information including wind direction, wind speed, humidity and temperature etc. of impact monitoring is extracted from the closest Tseung Kwan O Hong Kong Observatory Station. Moreover, the data of rainfall and air pressure would be extracted from King's Park Station.

3.6.17 For marine water quality monitoring, tidal information would be referred to tide gauge at Tai Miu Wan.

3.7 DETERMINATION OF ACTION/LIMIT (A/L) LEVELS

3.7.1 The baseline results form the basis for determining the environmental acceptance criteria for the impact monitoring. A summary of the Action/Limit (A/L) Levels for air quality, construction noise and water quality are shown in ***Tables 3-10***, ***3-11*** and ***3-12*** respectively.

Table 3-10 Action & Limit Levels of Air Quality (1-Hour & 24-Hr TSP)

Monitoring Station	Action Level (μg /m^3)		Limit Level (μg/m^3)	
	1-Hour TSP	24-Hr TSP	1-Hour TSP	24-Hr TSP
AM4	278	NA	500	NA
AM5	NA	190	NA	260
Note: 1-Hour & 24-Hr TSP of Action Level = (Average Baseline Results × 1.3 + Limit level)/2				

Table 3-11 Action and Limit Levels for Construction Noise, dB(A)

Monitoring Location	Action Level	Limit Level
CNMS-5	**Time Period: 0700-1900 hours on normal weekdays (Leq30min)**	
	When one or more documented complaints are received	***75*** dB(A)
	Time Period: 1900-2300 hours on all days (Leq15min)	
	When one or more documented complaints are received	***55*** dB(A)

Remarks:
1. *Construction noise monitoring will be resumed at the designated locations CNMS-1, CNMS-2, CNMS-3 and CNMS4 once they are available and permission are granted;*
2. *The designated locations CNMS-1, CNMS-2 and CNMS-3 are located at residential building which are still under construction, Limit Level of 75dB(A) will be adopted until they are occupied;*
3. *The designated location CNMS-4 is located at planned school and still not yet to construction. When the school occupied and operated, Limit Level of 70dB(A) should be adopted and should be reduced to 65dB(A) during examination period; and*
4. *If construction works are required during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority shall be followed.*

Table 3-12 Action and Limit Levels for Water Quality

Monitoring Station	Depth Average of SS (mg/L)			
	Action Level		Limit Level	
CC1	7.8	**OR** 120% of upstream control station at the same tide of the same day (Control Station C3 at Ebb tide and Control Station C4 at Flood tide), whichever is higher	9.3	**OR** 130% of upstream control station at the same tide of the same day (Control Station C3 at Ebb tide and Control Station C4 at Flood tide) , whichever is higher
CC2	9.0		9.2	
CC3	8.2		9.0	
CC4	13.8		15.4	
CC13	8.9		10.3	
SWI1	8 mg/L		10 mg/L	

Monitoring Location	Dissolved Oxygen (mg/L)			
	Depth Average of Surface and Mid-depth		Bottom	
	Action Level	Limit Level	Action Level	Limit Level
CC1	5.8	5.7	5.3	5.2
CC2	5.8	5.7	5.3	5.1
CC3	5.5	5.4	4.9	4.7
CC4	5.7	5.7	5.5	5.4
CC13	5.6	5.5	5.3	5.2
SWI1	5.4	4.8	5.1	5.0

Monitoring Location	Depth Average of Turbidity (NTU)			
	Action Level		Limit Level	
CC1	5.8	**OR** 120% of upstream control station at the same tide of the same day (Control Station C3 at Ebb tide and Control Station C4 at Flood tide) , whichever is higher	6.0	**OR** 130% of upstream control station at the same tide of the same day (Control Station C3 at Ebb tide and Control Station C4 at Flood tide) , whichever is higher
CC2	4.6		5.5	
CC3	4.8		5.4	
CC4	6.1		7.1	
CC13	6.0		6.3	
SWI1	6.1		7.1	

3.7.2 Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan which presented in ***Appendix E.***

3.8 DATA MANAGEMENT AND DATA QA/QC CONTROL

3.8.1 All monitoring data will be handled by the ET's in-house data recording and management system. The monitoring data recorded in the equipment will be downloaded directly from the equipment at the end of each monitoring day. The downloaded monitoring data will input into a computerized database properly maintained by the ET. The laboratory results will be input directly into the computerized database and checked by personnel other than those who input the data.

3.8.2 For monitoring parameters that require laboratory analysis, the local laboratory shall follow the QA/QC requirements as set out under the HOKLAS scheme for the relevant laboratory tests.

4. AIR QUALITY MONITORING

4.1 GENERAL

4.1.1 In the Reporting Period, 1-Hour TSP and 24-Hr TSP of air quality monitoring were respectively performed at interim alternative monitoring locations AM4 and AM5. The air quality monitoring schedule is presented in ***Appendix F***.

4.1.2 Valid calibration certificates of monitoring equipment are shown in ***Appendix G*** and the monitoring results are summarized in the following sub-sections

4.2 RESULTS OF AIR QUALITY MONITORING IN THE REPORTING MONTH

4.2.1 During the Reporting Period, ***15*** sessions of 1-hour TSP and ***6*** sessions of 24-hours TSP monitoring were carried out and the monitoring results are summarized in ***Table 4-1***. The detailed 24-hour TSP monitoring data are presented in ***Appendix H*** and the relevant graphical plots are shown in ***Appendix I***.

Table 4-1 1-Hour and 24-Hour TSP Air Quality Impact Monitoring Results

AM5		**AM4**				
24-Hr TSP (μg/m³)		**1-Hour TSP (μg/m³)**				
Date	**Meas. Result**	**Date**	**Start Time**	**1st Meas.**	**2nd Meas.**	**3rd Meas.**
1-Nov-19	150	2-Nov-19	9:29	80	76	74
7-Nov-19	173	8-Nov-19	13:50	79	82	86
13-Nov-19	149	14-Nov-19	13:52	96	102	99
19-Nov-19	165	20-Nov-19	13:42	89	95	104
25-Nov-19	168	26-Nov-19	10:36	77	73	72
30-Nov-19	175	--	--	--	--	--
Average (Range)	**163 (149 – 175)**	Average (Range)		**86 (72 – 104)**		

4.2.2 As shown in ***Table 4-1***, all the 1-hour TSP and 24-hour TSP monitoring results were below the Action / Limit Levels. No Notification of Exceedance (NOE) was issued in this Reporting Period.

4.2.3 The meteorological data during impact monitoring period is summarized in ***Appendix J***.

5. CONSTRUCTION NOISE MONITORING

5.1 GENERAL

5.1.1 As notified on 7 November 2019 that the designated monitoring location CNMS-1 at Lohas Park Package 4 (NSR ID R6 in EIA) was available for resident occupation, construction noise monitoring at designated monitoring location CNMS-1 was commenced on 8 November 2019. The noise quality monitoring schedule is presented in ***Appendix F***.

5.1.2 Valid calibration certificates of monitoring equipment is shown in ***Appendix G*** and the construction noise monitoring results are summarized in the following sub-sections

5.2 RESULTS OF NOISE MONITORING

5.2.1 ***8*** sessions of daytime construction noise monitoring were performed at both the designated monitoring location CNMS-1 and the interim alternative location CNMS-5 in the reporting period. The daytime noise monitoring results are summarized in ***Table 5-1*** and ***Table 5-2.*** The detailed noise monitoring data are presented in ***Appendix H*** and the relevant graphical plots are shown in ***Appendix I***.

Table 5-1 Daytime Construction Noise Impact Monitoring Results at CNMS-1

Date	Time of Starting	Time of Finishing	Measurement Result (dB(A))	
			$L_{eq30min}$	Façade Correction
8-Nov-19	15:13	15:43	65.1	NA
14-Nov-19	18:26	18:56	55.2	NA
20-Nov-19	14:38	15:08	66.5	NA
26-Nov-19	10:30	11:00	64.4	NA

Table 5-2 Daytime Construction Noise Impact Monitoring Results at CNMS-5

Date	Time of Starting	Time of Finishing	Measurement Result (dB(A))	
			$L_{eq30min}$	Façade Correction
8-Nov-19	14:34	15:04	63.7	NA
14-Nov-19	13:55	14:25	65.6	NA
20-Nov-19	13:44	14:14	66.8	NA
26-Nov-19	13:07	13:37	65.0	NA

5.2.2 As shown in ***Table 5-1*** and ***Table 5-2***, all the measured results were below 75dB(A) of the acceptance criteria. No adverse weather condition which may affect the monitoring result was encountered during the course of noise monitoring in the reporting period. Furthermore, no complaint on daytime construction noise was registered, indicating no exceedance of Action Level.

5.2.3 In the reporting period, evening marine work by Contractor of Contract 1 at Portion II was scheduled from 4 – 7, 11 – 16, 18 – 23 and 25 - 30 November 2019. Additional weekly evening construction noise monitoring were performed at both the designated monitoring location CNMS-1 and the interim alternative location CNMS-5 in the reporting period. The evening noise monitoring results at interim alternative location is summarized in ***Table 5-3*** and ***Table 5-4***. The detailed noise monitoring data are presented in ***Appendix H***.

Table 5-3 Evening Construction Noise Impact Monitoring Results at CNMS-1

Date	Time of Starting	Time of Finishing	Measurement Result (dB(A))	
			$L_{eq15min}$	Façade Correction
14-Nov-19	19:04	19:19	52.9	NA
21-Nov-19	19:08	19:23	56.1	NA
27-Nov-19	19:10	19:15	54.3	NA

Table 5-4 Evening Construction Noise Impact Monitoring Results at CNMS-5

Date	Time of Starting	Time of Finishing	Measurement Result (dB(A))	
			$L_{eq15min}$	Façade Correction
6-Nov-19	19:38	19:53	62.9	NA
14-Nov-19	19:27	19:42	59.8	NA
21-Nov-19	19:34	19:49	61.4	NA
27-Nov-19	19:40	19:55	60.8	NA

5.2.4 According to Table 5-3 and Table 5-4, the measured results on 21 November 2019 for CNMS-1, 6, 14, 21 and 27 November 2019 for CNMS-5 were higher than 55dB(a) of the acceptance criteria, Therefore a total of six (6) limit level evening noise monitoring exceedances were recorded in the reporting period and investigations were undertaken by ET accordingly.

5.2.5 For the evening noise monitoring exceedances recorded on 6, 14, 21 and 27 November 2019 at CNMS-5, since the marine work at Junk Bay were ceased before the evening noise monitoring event, it was considered the exceedances recorded on 6, 14, 21 and 27 November 2019 at CNMS-5 were unlikely due to the Project.

5.2.6 For evening noise monitoring exceedances on 21 November 2019 at CNMS-1, investigation were undertaken by ET. Since only one group of powered mechanical equipment stated in the Construction Noise Permit (CNP) GW-RE0886-19 was used during the evening marine work, the monitoring result obtained were within the range of evening noise obtained from baseline monitoring and external noise source such as traffic noise was noted during the course of monitoring, it is considered that the evening noise monitoring exceedances recorded on 21 November 2019 at CNMS-1 was unlikely caused by the Project. Nevertheless, the Contractor was reminded to strictly follow the requirement stipulated in the applied CNP so as to minimise the noise impact to the surrounding noise sensitive receiver.

6. WATER QUALITY MONITORING

6.1 GENERAL

6.1.1 The water quality monitoring schedule is presented in ***Appendix F*** and the monitoring results are summarized in the following sub-sections.

6.1.2 Valid calibration certificates of monitoring equipment and the laboratory accredited certificate is shown in ***Appendix G***. The water quality monitoring results are summarized in the following sub-sections.

6.2 RESULTS OF WATER QUALITY MONITORING

6.2.1 In this Reporting Period, a total of ***13*** sampling days were performed for marine water monitoring at the nine designated locations. Monitoring results of 3 key parameters: dissolved oxygen (DO), turbidity and suspended solids are summarized in ***Tables 6-1*** to ***6-4***.

Table 6-1 Results Summary of Depth Average (Surface & Middle Layer) of DO (mg/L)

Tidal	Sampling date	CC1	CC2	CC3	CC4	CC13	SWI1	C3	C4	I1
Mid-Ebb	1-Nov-19	6.4	6.3	6.3	6.2	6.3	6.3	6.4	6.4	6.3
	4-Nov-19	6.8	6.7	6.6	6.6	6.9	6.8	6.7	6.7	6.7
	6-Nov-19	6.9	6.9	6.4	6.8	6.8	6.2	6.7	6.8	6.6
	8-Nov-19	7.3	7.4	7.0	7.2	7.4	6.9	6.9	7.1	7.1
	11-Nov-19	8.2	8.1	8.4	7.8	8.0	8.6	7.5	7.4	8.0
	14-Nov-19	7.2	7.5	8.0	7.6	7.7	7.4	7.2	7.9	7.5
	16-Nov-19	7.3	7.1	7.3	7.2	7.3	7.6	7.4	7.3	7.2
	18/11/2019	7.2	7.5	7.3	7.2	7.5	7.4	7.4	7.2	7.6
	20-Nov-19	6.8	6.6	6.5	6.5	6.6	6.2	6.6	6.7	6.5
	22-Nov-19	6.8	6.8	6.2	6.7	6.6	6.2	6.4	6.4	6.4
	25-Nov-19	6.7	6.6	6.6	6.6	6.7	6.1	6.2	6.2	6.6
	27-Nov-19	6.6	6.4	6.4	6.5	6.5	6.4	6.4	6.7	6.3
	29-Nov-19	6.8	6.7	6.6	6.6	6.8	6.6	6.8	6.8	6.6
Mid-Flood	1-Nov-19	6.5	6.3	6.3	6.3	6.3	6.4	6.4	6.3	6.3
	4-Nov-19	6.9	6.8	6.6	6.7	6.8	6.7	6.7	6.8	6.6
	6-Nov-19	7.0	6.9	6.6	7.2	6.9	6.6	6.8	6.8	6.6
	8-Nov-19	7.5	7.6	7.0	7.5	7.5	7.5	7.1	7.2	7.1
	11-Nov-19	8.6	8.2	8.8	8.1	8.6	8.7	7.5	7.5	7.9
	14-Nov-19	7.5	7.4	8.0	7.4	7.9	7.3	7.1	8.0	7.8
	16-Nov-19	7.4	7.4	7.4	7.2	7.3	7.3	7.5	7.3	7.4
	18/11/2019	7.4	7.3	7.2	7.1	7.3	7.3	7.2	7.1	7.4
	20-Nov-19	6.8	6.6	6.5	6.6	6.5	6.3	6.4	6.6	6.5
	22-Nov-19	6.7	6.9	6.5	6.7	6.7	6.5	6.7	6.4	6.5
	25-Nov-19	6.6	6.6	6.6	6.5	6.6	6.1	6.1	6.2	6.5
	27-Nov-19	6.6	6.6	6.4	6.7	6.6	6.7	6.5	6.4	6.4
	29-Nov-19	6.8	6.6	6.5	6.7	6.7	6.7	6.8	6.8	6.6

Table 6-2 Results Summary of Bottom Depth of DO (mg/L)

Tidal	Sampling date	CC1	CC2	CC3	CC4	CC13	SWI1	C3	C4	I1
Mid-Ebb	1-Nov-19	6.3	6.2	6.2	NA	6.2	6.2	6.3	6.4	6.1
	4-Nov-19	6.7	6.4	6.5	NA	6.7	6.6	6.5	6.6	6.4
	6-Nov-19	6.9	6.8	6.4	NA	6.9	6.1	6.6	6.7	6.6
	8-Nov-19	7.2	7.0	6.7	NA	7.4	7.1	6.9	7.1	7.0
	11-Nov-19	7.3	7.1	7.0	NA	7.7	8.5	7.2	7.2	7.1
	14-Nov-19	6.9	7.0	7.5	NA	7.1	7.4	7.2	7.0	7.0
	16-Nov-19	7.1	6.8	6.5	NA	7.2	7.6	7.2	7.1	6.6
	18/11/2019	7.0	6.7	7.0	NA	6.7	7.4	7.1	7.0	6.6
	20-Nov-19	6.7	6.5	6.3	NA	6.6	6.2	6.3	6.4	6.3
	22-Nov-19	6.8	6.4	6.2	NA	6.6	5.8	6.4	6.3	6.4
	25-Nov-19	6.6	6.2	5.5	NA	6.5	6.0	6.1	6.2	6.3

Tidal	Sampling date	CC1	CC2	CC3	CC4	CC13	SWI1	C3	C4	I1
	27-Nov-19	6.6	6.4	6.1	NA	6.4	6.6	6.3	6.6	6.3
	29-Nov-19	6.7	6.6	6.0	NA	6.6	6.6	6.7	6.7	6.3
Mid-Flood	1-Nov-19	6.4	6.0	6.1	NA	6.1	6.2	6.3	6.3	6.1
	4-Nov-19	6.6	6.5	6.5	NA	6.4	6.6	6.6	6.6	6.3
	6-Nov-19	7.0	6.9	6.4	NA	7.0	6.5	6.7	6.7	6.7
	8-Nov-19	7.4	7.0	6.9	NA	7.4	7.1	6.9	7.1	7.1
	11-Nov-19	7.4	7.5	7.5	NA	8.6	8.9	6.9	7.3	7.0
	14-Nov-19	7.0	7.0	7.1	NA	7.3	7.4	7.1	7.2	7.0
	16-Nov-19	7.2	7.1	6.5	NA	7.1	7.3	7.2	7.1	6.4
	18/11/2019	7.3	7.3	6.0	NA	7.3	7.4	6.9	6.9	6.5
	20-Nov-19	6.6	6.5	6.1	NA	6.5	5.9	6.3	6.4	6.3
	22-Nov-19	6.7	6.4	6.3	NA	6.6	6.2	6.5	6.3	6.5
	25-Nov-19	6.5	6.5	5.4	NA	6.5	5.9	6.1	6.1	6.3
	27-Nov-19	6.5	6.5	5.6	NA	6.6	6.2	6.3	6.4	6.4
	29-Nov-19	6.7	6.4	6.3	NA	6.5	6.7	6.6	6.7	6.3

Remark: No Dissolved Oxygen (Bottom) monitoring data available for CC4 due to the water depth measured at CC4 during the monitoring days were less than 3 meters.

Italic and bold value indicated Action Level exceedance

Underlined and bold value indicated Limit Level exceedance

Table 6-3 Results Summary of Depth Average of Turbidity (NTU)

Tidal	Sampling date	CC1	CC2	CC3	CC4	CC13	SWI1	C3	C4	I1
Mid-Ebb	1-Nov-19	1.6	2.3	1.3	2.5	2.1	1.8	2.0	1.8	1.8
	4-Nov-19	1.2	2.0	1.4	1.0	1.4	1.9	1.5	1.3	1.9
	6-Nov-19	0.7	1.0	1.5	1.0	1.1	1.9	1.2	0.8	1.6
	8-Nov-19	0.6	0.9	1.3	1.0	0.5	1.9	1.4	0.6	1.5
	11-Nov-19	1.2	1.4	1.0	1.9	1.2	0.9	1.4	1.5	1.4
	14-Nov-19	2.0	1.8	0.8	1.1	1.2	1.5	1.1	1.7	2.5
	16-Nov-19	2.2	3.0	1.5	1.2	1.0	1.1	1.4	2.0	2.1
	18/11/2019	1.1	1.8	1.6	1.6	1.3	0.9	0.9	2.1	0.8
	20-Nov-19	0.9	1.3	2.1	2.2	1.3	3.0	3.1	1.6	2.3
	22-Nov-19	1.2	1.6	1.9	1.5	2.0	1.7	1.7	1.5	2.8
	25-Nov-19	1.1	1.5	1.7	2.2	1.1	2.0	1.8	2.1	1.6
	27-Nov-19	1.6	2.1	1.9	2.9	1.8	1.5	2.5	1.7	3.0
	29-Nov-19	2.3	2.5	2.8	2.8	2.3	2.6	2.1	2.0	3.1
Mid-Flood	1-Nov-19	1.6	1.9	1.4	1.4	1.8	1.7	1.8	1.6	1.6
	4-Nov-19	1.3	1.8	1.6	1.1	1.7	1.8	1.5	1.3	2.2
	6-Nov-19	0.8	1.0	1.3	0.9	0.7	1.7	1.4	0.8	1.4
	8-Nov-19	0.6	1.0	1.3	1.2	0.7	1.6	0.8	0.7	1.2
	11-Nov-19	0.9	1.3	1.2	1.2	0.8	0.8	1.2	1.6	1.5
	14-Nov-19	1.3	1.7	1.1	2.2	1.1	1.3	1.5	1.4	2.0
	16-Nov-19	1.1	1.6	1.3	1.2	1.3	1.2	1.1	1.6	2.1
	18/11/2019	0.7	0.7	1.5	2.2	0.7	0.4	1.4	1.4	1.2
	20-Nov-19	1.3	1.5	2.7	1.1	1.4	3.5	3.0	2.5	2.2
	22-Nov-19	1.2	2.7	2.1	1.8	1.4	1.5	2.9	1.7	2.0
	25-Nov-19	1.1	1.1	2.1	1.8	1.1	2.9	2.0	2.5	2.6
	27-Nov-19	1.8	1.8	2.3	1.8	1.7	2.4	2.7	2.3	2.1
	29-Nov-19	1.9	2.7	2.4	2.9	2.0	2.5	2.5	2.0	3.1

Table 6-4 Results Summary of Depth Average of Suspended Solids (mg/L)

Tidal	Sampling date	CC1	CC2	CC3	CC4	CC13	SWI1	C3	C4	I1
Mid-Ebb	1-Nov-19	3.1	3.6	2.3	1.8	3.2	3.3	2.9	2.9	2.2
	4-Nov-19	3.2	3.7	1.3	2.2	3.2	3.4	2.4	2.6	3.1
	6-Nov-19	3.5	3.0	3.3	3.0	3.0	7.5	2.8	2.9	3.7
	8-Nov-19	3.4	3.3	4.6	3.1	3.5	7.3	6.8	4.4	3.3
	11-Nov-19	4.2	3.8	2.5	4.5	3.2	3.6	4.3	4.8	6.4
	14-Nov-19	6.0	6.3	5.6	4.8	3.1	5.1	3.5	3.4	3.2
	16-Nov-19	5.0	8.8	6.9	4.3	**12.3**	7.3	6.5	8.5	7.3
	18/11/2019	4.6	6.4	4.3	3.9	4.9	4.1	4.5	5.7	5.0
	20-Nov-19	5.5	5.5	4.8	6.2	5.8	**12.8**	5.5	4.9	7.5
	22-Nov-19	2.9	2.2	2.2	3.9	1.7	2.8	2.9	2.2	2.3
	25-Nov-19	2.6	3.4	2.2	4.5	3.3	5.8	3.2	2.7	2.3
	27-Nov-19	2.9	2.6	2.4	4.1	4.2	2.9	4.5	2.6	3.8
	29-Nov-19	6.1	5.7	6.0	11.7	3.5	7.9	4.6	3.9	5.3
Mid-Flood	1-Nov-19	2.9	3.3	2.9	1.7	2.5	2.3	3.8	3.3	3.5
	4-Nov-19	2.8	2.8	1.0	1.7	2.9	3.8	2.0	1.7	2.9
	6-Nov-19	2.4	2.5	2.4	1.7	2.5	4.2	1.6	3.2	4.7
	8-Nov-19	1.8	2.5	3.6	3.2	1.0	1.7	1.2	2.0	2.9
	11-Nov-19	3.4	3.2	4.1	3.9	3.5	4.6	4.1	4.4	3.5
	14-Nov-19	3.3	5.7	4.2	6.5	4.8	5.0	5.1	3.3	4.2
	16-Nov-19	4.1	4.5	***8.6***	4.6	5.7	4.7	6.5	5.9	6.2
	18/11/2019	7.7	8.0	4.5	4.4	7.2	7.9	5.0	3.6	5.8
	20-Nov-19	5.9	7.7	8.4	6.7	5.4	**11.5**	5.7	7.5	5.9
	22-Nov-19	2.3	2.1	1.8	2.9	2.7	3.0	2.7	2.6	2.4
	25-Nov-19	3.0	2.8	1.5	6.9	2.6	6.6	3.6	3.0	2.9
	27-Nov-19	3.3	2.8	2.0	3.9	4.6	3.8	3.7	4.8	2.3
	29-Nov-19	4.9	4.4	4.6	3.4	4.4	6.2	8.8	7.8	6.7

Remark: Italic and bold value indicated Action Level exceedance
Underlined and bold value indicated Limit Level exceedance

Table 6-5 Results Summary of Depth Average of Temperature (°C)

Tidal	Sampling date	CC1	CC2	CC3	CC4	CC13	SWI1	C3	C4	I1
Mid-Ebb	1-Nov-19	25.6	25.6	25.8	25.6	25.6	25.7	25.6	25.6	25.6
	4-Nov-19	25.4	25.5	25.6	25.6	25.4	25.5	25.4	25.3	25.4
	6-Nov-19	25.0	25.0	25.2	25.1	25.0	25.1	25.1	25.1	25.0
	8-Nov-19	24.8	24.7	24.8	24.7	24.7	24.7	24.7	24.7	24.8
	11-Nov-19	24.5	24.3	24.4	24.4	24.4	24.6	24.3	24.3	24.4
	14-Nov-19	23.8	23.9	24.0	24.0	23.8	24.0	23.8	23.9	23.9
	16-Nov-19	23.7	23.7	23.7	23.8	23.8	23.9	23.7	23.6	23.7
	18/11/2019	23.8	24.0	24.2	24.1	24.0	24.2	23.9	23.9	24.2
	20-Nov-19	23.6	23.4	23.5	23.5	23.4	23.4	23.4	23.4	23.4
	22-Nov-19	23.4	23.3	23.5	23.5	23.4	23.6	23.2	23.3	23.3
	25-Nov-19	23.6	23.4	23.5	23.5	23.5	23.3	23.3	23.3	23.5
	27-Nov-19	23.1	23.0	23.1	22.9	23.0	23.1	22.9	23.0	23.0
	29-Nov-19	22.5	22.5	22.5	22.6	22.7	22.6	22.5	22.5	22.6
Mid-Flood	1-Nov-19	25.7	25.6	25.6	25.7	25.6	25.7	25.6	25.6	25.6
	4-Nov-19	25.5	25.4	25.7	25.6	25.4	25.5	25.4	25.3	25.4
	6-Nov-19	25.1	25.1	25.1	25.3	25.1	25.2	25.1	25.1	25.2
	8-Nov-19	24.8	24.7	24.8	24.9	24.8	24.8	24.7	24.7	24.8
	11-Nov-19	24.7	24.4	24.4	24.4	24.6	24.5	24.3	24.4	24.4
	14-Nov-19	23.8	23.8	24.0	23.9	23.9	24.0	23.8	23.9	23.9
	16-Nov-19	23.8	23.8	23.8	23.8	23.7	23.9	23.7	23.7	23.8
	18/11/2019	24.0	23.9	24.1	24.2	24.0	24.2	23.8	23.7	24.0
	20-Nov-19	23.5	23.4	23.4	23.5	23.4	23.4	23.4	23.4	23.4

Tidal	Sampling date	CC1	CC2	CC3	CC4	CC13	SWI1	C3	C4	I1
	22-Nov-19	23.4	23.4	23.5	23.4	23.4	23.6	23.3	23.3	23.4
	25-Nov-19	23.5	23.4	23.5	23.3	23.4	23.3	23.3	23.2	23.4
	27-Nov-19	23.2	23.0	23.1	23.0	23.1	23.1	23.0	23.0	23.2
	29-Nov-19	22.5	22.5	22.5	22.6	22.6	22.6	22.5	22.5	22.5

Table 6-6 Results Summary of Depth Average of Salinity (ppt)

Tidal	Sampling date	CC1	CC2	CC3	CC4	CC13	SWI1	C3	C4	I1
Mid-Ebb	1-Nov-19	35.0	34.9	34.8	34.9	34.8	34.8	35.0	35.0	34.7
	4-Nov-19	35.0	35.1	35.0	34.9	35.0	35.1	35.0	35.1	35.0
	6-Nov-19	35.1	35.1	34.9	35.2	35.1	35.1	35.1	35.1	35.0
	8-Nov-19	35.2	35.2	35.1	35.2	35.1	35.1	35.1	35.1	35.1
	11-Nov-19	35.2	35.2	35.1	35.2	35.1	35.2	35.2	35.2	35.1
	14-Nov-19	35.3	35.2	35.1	35.1	35.1	35.2	35.2	35.2	35.1
	16-Nov-19	35.2	35.2	35.1	35.1	35.2	35.1	35.3	35.3	35.2
	18/11/2019	35.2	35.1	35.1	35.1	35.1	35.0	35.1	35.2	35.1
	20-Nov-19	35.3	35.3	35.3	35.3	35.3	35.4	35.4	35.4	35.3
	22-Nov-19	35.4	35.5	35.4	35.3	35.4	35.4	35.4	35.3	35.4
	25-Nov-19	35.3	35.4	35.3	35.4	35.3	35.3	35.3	35.3	35.4
	27-Nov-19	35.4	35.4	35.3	35.4	35.4	35.3	35.4	35.4	35.4
	29-Nov-19	35.5	35.4	35.3	35.4	35.4	35.4	35.4	35.4	35.3
Mid-Flood	1-Nov-19	34.8	34.8	34.8	34.8	34.8	34.7	34.9	34.9	34.8
	4-Nov-19	35.0	35.0	35.0	34.9	35.0	35.0	35.0	35.1	35.0
	6-Nov-19	35.1	35.0	35.0	35.1	35.0	35.1	35.1	35.1	35.0
	8-Nov-19	35.2	35.1	35.1	35.2	35.1	35.1	35.1	35.1	35.1
	11-Nov-19	35.1	35.1	35.1	35.2	35.0	35.1	35.2	35.1	35.1
	14-Nov-19	35.3	35.2	35.1	35.1	35.1	35.1	35.2	35.2	35.1
	16-Nov-19	35.2	35.2	35.1	35.1	35.2	35.1	35.3	35.3	35.2
	18/11/2019	35.1	35.1	35.0	35.0	35.0	34.9	35.2	35.3	35.1
	20-Nov-19	35.3	35.3	35.3	35.3	35.3	35.4	35.4	35.4	35.3
	22-Nov-19	35.4	35.4	35.3	35.3	35.4	35.4	35.4	35.3	35.4
	25-Nov-19	35.3	35.3	35.4	35.4	35.3	35.4	35.3	35.4	35.4
	27-Nov-19	35.3	35.4	35.3	35.4	35.4	35.3	35.4	35.4	35.3
	29-Nov-19	35.4	35.4	35.3	35.4	35.4	35.4	35.4	35.4	35.3

Table 6-7 Results Summary of Depth Average of pH

Tidal	Sampling date	CC1	CC2	CC3	CC4	CC13	SWI1	C3	C4	I1
Mid-Ebb	1-Nov-19	8.22	8.22	8.21	8.24	8.21	8.23	8.22	8.23	8.21
	4-Nov-19	8.23	8.23	8.23	8.24	8.21	8.18	8.22	8.23	8.22
	6-Nov-19	8.26	8.27	8.23	8.26	8.26	8.24	8.25	8.26	8.25
	8-Nov-19	8.29	8.30	8.28	8.27	8.30	8.18	8.27	8.27	8.28
	11-Nov-19	8.32	8.33	8.30	8.30	8.33	8.35	8.28	8.27	8.32
	14-Nov-19	8.28	8.30	8.31	8.28	8.30	8.22	8.27	8.29	8.29
	16-Nov-19	8.28	8.28	8.27	8.30	8.28	8.34	8.29	8.28	8.27
	18/11/2019	8.25	8.27	8.25	8.19	8.26	8.09	8.24	8.21	8.27
	20-Nov-19	8.31	8.31	8.29	8.29	8.31	8.25	8.31	8.31	8.30
	22-Nov-19	8.31	8.31	8.27	8.29	8.30	8.20	8.28	8.28	8.29
	25-Nov-19	8.26	8.27	8.27	8.26	8.27	8.25	8.24	8.24	8.27
	27-Nov-19	8.26	8.26	8.25	8.36	8.28	8.17	8.28	8.29	8.25
	29-Nov-19	8.31	8.30	8.29	8.30	8.30	8.29	8.31	8.31	8.31
Mid-Flood	1-Nov-19	8.21	8.21	8.21	8.20	8.21	8.17	8.22	8.20	8.21
	4-Nov-19	8.25	8.24	8.23	8.25	8.25	8.23	8.24	8.24	8.24

Tidal	Sampling date	CC1	CC2	CC3	CC4	CC13	SWI1	C3	C4	I1
	6-Nov-19	8.24	8.25	8.22	8.23	8.24	8.06	8.23	8.23	8.24
	8-Nov-19	8.31	8.31	8.28	8.30	8.30	8.19	8.29	8.29	8.29
	11-Nov-19	8.34	8.35	8.36	8.34	8.35	8.32	8.30	8.30	8.32
	14-Nov-19	8.28	8.30	8.30	8.29	8.31	8.26	8.28	8.31	8.31
	16-Nov-19	8.29	8.29	8.28	8.30	8.28	8.29	8.30	8.29	8.28
	18/11/2019	8.27	8.27	8.25	8.25	8.27	8.26	8.26	8.26	8.27
	20-Nov-19	8.31	8.30	8.29	8.30	8.30	8.30	8.30	8.31	8.29
	22-Nov-19	8.30	8.31	8.28	8.33	8.30	8.28	8.31	8.29	8.30
	25-Nov-19	8.25	8.27	8.26	8.27	8.27	8.26	8.23	8.24	8.26
	27-Nov-19	8.28	8.28	8.27	8.30	8.27	8.36	8.29	8.30	8.28
	29-Nov-19	8.30	8.30	8.28	8.31	8.30	8.16	8.30	8.34	8.29

6.2.2 The monitoring results including in-situ measurements and laboratory testing results are provided in ***Appendix H***. The graphical plots are shown in ***Appendix I***.

6.2.3 A summary of exceedances for the four parameters: dissolved oxygen (DO), turbidity and suspended solids (SS) are shown in ***Table 6-8.***

Table 6-8 Summary of Water Quality Exceedance

Station	DO (Ave of Top & mid-depth)		DO (Bottom Depth)		Turbidity (Depth Ave)		SS (Depth Ave)		Total Exceedance for the Station	
	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL
CC1	0	0	0	0	0	0	0	0	0	0
CC2	0	0	0	0	0	0	0	0	0	0
CC3	0	0	0	0	0	0	**1**	0	**1**	0
CC4	0	0	NA	NA	0	0	0	0	0	0
CC13	0	0	0	0	0	0	0	**1**	0	**1**
SWI1	0	0	0	0	0	0	0	**2**	0	**2**
No of Exceedance	0	0	0	0	0	0	**1**	**3**	**1**	**3**

6.2.4 In this Reporting Period, one (1) Action Level and three (3) Limit Level exceedances of Suspended Solid were recorded.

6.2.5 Upon confirmation of the monitoring result, Notification of Exceedances (NOEs) have been issued to relevant parties. Investigation for the cause of exceedance was carried out by ET subsequently.

6.2.6 For SS exceedance recorded on 16 and 20 November 2019, investigation were undertaken by ET. Since silt curtains as water quality mitigation measure were properly implemented, no abnormal and turbid discharge made from the construction site was observed during the course of marine water sampling, it is considered that the exceedances of suspended solid recorded in this period were unlikely caused by the Project. Nevertheless, the Contractor was reminded to check the implementation of silt curtain regularly to ensure no seepage of muddy water into the marine water body.

7. WASTE MANAGEMENT

7.1 GENERAL WASTE MANAGEMENT

7.1.1 Waste management would be carried out by an on-site Environmental Officer or an Environmental Consultant from time to time.

7.2 RECORDS OF WASTE QUANTITIES

7.2.1 All types of waste arising from the construction work are classified into the following:

- Construction & Demolition (C&D) Material;
- Chemical Waste; and
- General Refuse

7.2.2 According to the information provided by Contractor of Contract 1 and Contract 2, waste disposal was made in the Reporting period are summarized in ***Tables 7-1*** and ***7-2***.

Table 7-1 Summary of Quantities of Inert C&D Materials

Type of Waste	Contract 1		Contract 2	
	Quantity	Disposal Location	Quantity	Disposal Location
Total C&D Materials (Inert) (‘000m^3)	0.744	-	2.351	-
Reused in this Contract (Inert) (‘000m^3)	0	-	0	-
Reused in other Projects (Inert) (‘000m^3)	0	-	0	-
Disposal as Public Fill (Inert) (‘000m^3)	0.744	TKO 137	2.351	TKO 137
Imported Fill (‘000m^3)	0	-	0	-

Table 7-2 Summary of Quantities of C&D Wastes

Type of Waste	Contract 1		Contract 2	
	Quantity	Disposal Location	Quantity	Disposal Location
Recycled Metal (‘000kg)	0	-	8.87	Collected by recycling company
Recycled Paper / Cardboard Packing (‘000kg)	0.092	Collected by paper recycling company	0	-
Recycled Plastic (‘000kg)	0	-	0	-
Chemical Wastes (‘000kg)	0	-	0	-
General Refuses (‘000m^3)	0.075	NENT	0.004	NENT

7.2.3 The Monthly Summary Waste Flow Table of the Contracts 1 and Contract 2 are shown in ***Appendix K***.

8. SITE INSPECTION

8.1 REQUIREMENTS

8.1.1 According to the approved EM&A Manual, the environmental site inspection shall be formulation by ET Leader. Weekly environmental site inspections should carry out to confirm the environmental performance.

8.2 FINDINGS / DEFICIENCIES DURING THE REPORTING MONTH

Contract 1

8.2.1 In this Reporting Month, weekly joint site inspection to evaluate site environmental performance for the *Contract 1* was carried out by the Project Consultant, ET and the Contractor on ***6, 13, 20 & 27 November 2019***. Moreover, the Independent Environmental Checker (IEC) perform monthly site inspection was on ***13 November 2019***.

8.2.2 The findings / deficiencies of ***Contract 1*** that observed during the weekly site inspection are listed in ***Table 8-1*** and the site layout plan was provided in **Appendix A**.

Table 8-1 Site Observations of the Contract 1 (Contract No. NE/2017/07)

Date	Findings / Deficiencies	Follow-Up Status
31 October 2019	Observation: • Drip tray should be provided for chemical storage on-site. (Portion II – Derrick Barge) • Sediment cumulated beside the WepSep should be cleaned. (Portion II – Flat Top Barge) • Muddy water and oil stain spillage on the pilling platform should be cleaned to prevent overflow into the water body. (Portion II – Pilling Platform)	• The chemical containers were removed from site. (Rectified on 31 October 2019) • Sediment cumulated beside the WepSep was cleaned. (Rectified on 31 October 2019) • Muddy water and oil stain spillage on the pilling platform was cleaned to prevent overflow into the water body. (Rectified on 1 November 2019)
6 November 2019	Observation: Colourless NRMM label should be replaced. (Portion II – Generator in Derrick Barge)	• Colourless NRMM label was replaced. (Rectified on 7 November 2019)
13 November 2019	Observation: • Stagnant water cumulated inside the drip tray should be cleaned. (Portion II – Derrick Barge & Portion V) • Oil stain on the deck should be cleaned. (Portion II – Derrick Barge)	• Stagnant water cumulated inside the drip tray was cleaned. (Rectified on 14 November 2019) Oil stain on the deck was cleaned. (Rectified on 14 November 2019)
20 November 2019	Observation: • Loose materials cumulated near the barging point should be cleaned. (Works Area A) • Silt-curtain should be sealed properly. (Portion II – Pilling Platform)	• Loose material cumulated near the barging point was cleaned. (Rectified on 23 November 2019) • Silt-curtain was sealed properly. (Rectified on 23 November 2019)
27 November 2019	Observation: • Stock pile storage on-site should be	• Stockpile storage on-site was

Date	Findings / Deficiencies	Follow-Up Status
	covered to reduce dust impact. (Works Area A) • Drip tray should be provided for chemical storage on-site. (Portion II – Pre-casted Shell) • Improper color of the NRMM label should be replaced. (Portion II)	covered to reduce dust impact. (Rectified on 27 November 2019) • Chemical storage on-site was removed. (Rectified on 27 November 2019) • Improper color of the NRMM label was replaced. (Rectified on 27 November 2019)

Contract 2

8.2.3 In this Reporting Month, weekly joint site inspection to evaluate site environmental performance for the *Contract 2* were carried out by the Project Consultant, ET and the Contractor on ***2, 9, 16, 23 & 31 October 2019***. Moreover, the Independent Environmental Checker (IEC) perform monthly site inspection was on ***9 October 2019***.

8.2.4 The findings / deficiencies of ***Contract 2*** that observed during the weekly site inspection are listed in ***Table 8-2*** and the site layout plan was provided in **Appendix A**.

Table 8-2 Site Observations of the Contract 2 (Contract No. NE/2017/08)

Date	Findings / Deficiencies	Follow-Up Status
31 October 2019	Observation: • Stagnant water cumulated inside the drip tray should be cleaned. (Portion VI) • Proper maintenance should be provided for the wheel washing and water spraying system to make sure the system is functional. (Portion VI) • Sediment cumulated around the generator should be cleaned. (Portion VI) • Water spraying should be covered at all exposed area to reduce dust impact. (Portion III)	• Stagnant water was removed. (Rectified on 4 November 2019) • Water spraying system was maintained in good condition. (Rectified on 4 November 2019) • Sediment cumulated around the generator was removed. (Rectified on 4 November 2019) • Water spraying was provided to exposed area. (Rectified on 4 November 2019)
6 November 2019	Observation: • Proper dust mitigation measure should be provided for excavation works to reduce dust impact. (Portion VI)	• Water spraying was provided to excavation works. (Rectified on 7 November 2019)
13 November 2019	Observation: • Water spraying should be covered at all site haul road and exposed area to reduce dust impact. (Portion VI) • Housekeeping should be improved. General refuse scattered on-site should be cleaned. (Portion VI)	• Water spraying was provided to exposed area to reduce dust impact. (Rectified on 18 November 2019) • General refuse was removed from site. (Rectified on 18 November 2019)

	• Proper dust mitigation measures should be provided for dusty stockpile storage on-site. (Portion VI) • Stagnant water and mud cumulated inside the drip tray should be cleaned. (Portion VI) • Temporary drainage system should be implemented properly to drain off the excess water accmulated on-site. (Portion VI)	• Stockpile was removed. (Rectified on 18 November 2019) • Stagnant water cumulated inside drip tray was removed. (Rectified on 18 November 2019) • Wastewater from PBSH was direct to the sedimentation tank for further treatment. (Rectified on 18 November 2019)
20 November 2019	Observation: • Housekeeping should be improved. General refuse scattered on-site should be cleaned. (Portion VI) • Stagnant water cumulated inside the drip tray should be cleaned. (Portion VI)	• General refuse were removed from site. (Rectified on 25 November 2019) • Stagnant water inside drip tray was removed. (Rectified on 25 November 2019)
27 November 2019	Observation: • C&D materials cummulated inside the temporary drainage should be cleaned. (Portion VI)	• C&D material cumulated inside the temporary drainage was removed. (Rectified on 29 November 2019)

8.3 IMPLEMENTATION STATUS OF SURFACE RUNOFF MITIGATION MEASURES DURING THE REPORTING MONTH

8.3.1 During the inspection of the reporting month, implementation of surface runoff mitigation measures were observed in both Contracts. The surface runoff mitigation measures observed during the weekly site inspection of Contract 1 and Contract 2 are summarized below and the photo recorded was provided in **Appendix L**.

Contract 1 (Contract No. NE/2017/07)

8.3.2 The surface runoff mitigation measures of Contract 1 implemented in this Reporting Period are:-

- Waste skip was provided to storage the concrete washing water during concreting work.
- Exposed area had been shotcrete to prevent the generation of muddy water.
- Silt-curtain had been provided to prevent muddy water overflow from the piling platform.

Contract 2 (Contract No. NE/2017/08)

8.3.3 The surface runoff mitigation measures of Contract 2 implemented in this Reporting Period are:-

- Exposed area had been covered to prevent generation of muddy surface run-off during rainstorm.
- Treatment facilities was installed at site to treat the site generated water prior discharge.
- Gap between the concrete block and the sea front was sealed up.
- Trench had been provided to divert the surface runoff to the de-silting facilities.

8.3.4 Overall, the surface runoff mitigation measures of Contract 1 and Contract 2 observed during the inspection of the reporting period are efficient.

9. LANDFILL GAS MONITORING

9.1 GENERAL REQUIREMENT

9.1.1 Pursuant to Section 13 of the Project's EM&A Manual, landfill gas monitoring shall perform during excavation work within the 250m Consultation Zone of Tseung Kwan O Stage II & III Landfill. For landfill gas monitoring requirements, pre entry and routine measurement shall be undertaken in accordance with the *Factories and Industrial Undertaking (Confined Spaces) Regulation*.

9.1.2 According to Environmental Mitigation Implementation Schedule (EMIS) S14.7.6, portable monitoring equipment can be used to conduct landfill gas monitoring. Moreover, the frequency and areas to be monitored should be set down prior to commencement of the works either by the Safety Officer or by an appropriately qualified person.

9.2 LIMIT LEVELS AND EVENT AND ACTION PLAN

9.2.1 In event of the trigger levels specified in Table 14.6 of the EIA report being exceeded, a person, such as the Safety Officer, shall be nominated, with deputies, to be responsible for dealing with any emergency which may occur due to LFG. In an emergency situation the nominated person, or his deputies, shall have the necessary authority and shall ensure that the confined space is evacuated and the necessary works implemented for reducing the concentrations of gas. The Limit levels and relevant Action Plans for landfill gas detected in utilities and any on-site areas following construction is listed in ***Table 9-1***.

Table 9-1 Actions in the Event of Landfill Gas Being Detected in Excavations

Parameter	Limit Level	Actions
Methane	>10% LEL (i.e. >0.5% by volume)	• Post "No Smoking" signs • Prohibit hot works • Ventilate to restore methane to <10% LEL
	>20% LEL (i.e. >1% by volume)	• Stop excavation works • Evacuate personnel/prohibit entry • Increase ventilation to restore methane to <10% LEL
Carbon dioxide	>0.5%	• Ventilate to restore carbon dioxide to <0.5%
	>1.5%	• Stop excavation works • Evacuate personnel/prohibit entry • Increase ventilation to restore carbon dioxide to <0.5%
Oxygen	<19%	Ventilation to restore oxygen >19%
	<18%	• Stop excavation works • Evacuate personnel/prohibit entry • Increase ventilation to restore oxygen to >19%

9.2.2 In the event of the trigger levels specified in Table 9-1 being exceeded, the Safety Officer shall be responsible for dealing with any emergency which may occur due to landfill gas.

9.3 LANDFILL GAS MONITORING

9.3.1 In the Reporting Period, landfill gas monitoring was conducted at the zone Wan O Road which excavation work of Contract 2 was carried out. A Crowcon gas detector was used for the landfill gas monitoring and the valid calibration certificate is presented in **Appendix G**.

9.3.2 There were a total of ***26*** days monitoring were carried by the Safety Officer or an approved and qualified persons. The results of landfill gas measurement are summarized in ***Table 9-2***. Moreover, database of monitoring result is attached in **Appendix H**.

Table 9-2 Summary of Landfill Gas Measurement Results

Landfill Gas Parameter	Action Level	Limit Level	Detectable at LMR	
			Min	Max
Methane	>10% LEL (>0.5% v/v)	>20% LEL (>1% v/v)	0.1%	0.1%
Oxygen	<19%	<18%	20.8%	21.0%
Carbon Dioxide	>0.5%	>1.5%	0.1%	0.2%

9.3.3 The measurement results shown that slightly methane concentration was detected, oxygen concentration measured was over 19.0 % and Carbon Dioxide was between 0.1% and 0.2 %. No exceedance was triggered and therefore no corrective action was required accordingly.

10. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

10.1 ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

10.1.1 In the Reporting Period, no environmental complaint, summons and prosecution under the EM&A Programme was lodged for the project. The statistical summary table of environmental complaint is presented in ***Tables 10-1, 10-2*** and ***10-3***.

Table 10-1 Statistical Summary of Environmental Complaints

Reporting Period	Contract	Environmental Complaint Statistics		
		Frequency	Cumulative	Complaint Nature
1 – 30 November 2019	1	0	1	NA
1 – 30 November 2019	2	0	0	NA

Table 10-2 Statistical Summary of Environmental Summons

Reporting Period	Contract	Environmental Summons Statistics		
		Frequency	Cumulative	Summons Nature
1 – 30 November 2019	1	0	0	NA
1 – 30 November 2019	2	0	0	NA

Table 10-3 Statistical Summary of Environmental Prosecution

Reporting Period	Contract	Environmental Prosecution Statistics		
		Frequency	Cumulative	Prosecution Nature
1 – 30 November 2019	1	0	0	NA
1 – 30 November 2019	2	0	0	NA

11. IMPLEMENTATION STATUS OF MITIGATION MEASURES

11.1 GENERAL REQUIREMENTS

11.1.1 The environmental mitigation measures that recommended in the Implementation Schedule for Environmental Mitigation Measures (ISEMM) in the approved EM&A Manual covered the issues of dust, noise, water and waste and they are summarized presented in ***Appendix M.***

11.1.2 The Contractors had been implementing the required environmental mitigation measures according to the Environmental Monitoring and Audit Manual subject to the site condition. Environmental mitigation measures generally implemented by the Contractors in this Reporting Month are summarized in ***Table 11-1*** and photo record of water mitigation measure was provided in **Appendix L**.

Table 11-1 Environmental Mitigation Measures in the Reporting Month

Issues	Environmental Mitigation Measures
Construction Noise	• Regularly to maintain all plants, so only the good condition plants were used on-site ; • If possible, all mobile plants onsite operation has located far from NSRs; • When machines and plants (such as trucks) were not in using, it was switched off; • Wherever possible, plant was prevented oriented directly the nearby NSRs; • Provided quiet powered mechanical equipment to use onsite; • Weekly noise monitoring was conducted to ensure construction noise meet the criteria.
Air Quality	• Stockpile of dusty material was covered entirely with impervious sheeting or sprayed with water so as to maintain the entire surface wet; • The construction plants regularly maintained to avoid the emissions of black smoke; • The construction plants switched off when it not in use; • Water spraying on haul road and dry site area was provided regularly; • Where a vehicle leaving the works site is carrying a load of dusty materials, the load has covered entirely with clean impervious sheeting; and • Before any vehicle leaving the works site, wheel watering has been performed.
Water Quality	• Debris and refuse generated on-site collected daily; • Oils and fuels were stored in designated areas; • The chemical waste storage as sealed area provided; • Site hoarding with sealed foot were provided surrounding the boundary of working site to prevent wastewater or site surface water runoff get into public areas; and • Portable chemical toilets were provided on-site. A licensed contractor was regularly disposal and maintenance of these facilities. • Silt curtain was installed and maintained in accordance with EP condition
Waste and Chemical Management	• Excavated material reused on site as far as possible to minimize off-site disposal. • Scrap metals or abandoned equipment should be recycled if possible; • Waste arising kept to a minimum and be handled, transported and disposed of in a suitable manner; • Disposal of C&D wastes to any designated public filling facility and/or landfill followed a trip ticket system; and • Chemical waste handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.
General	• The site is generally kept tidy and clean. • Mosquito control is performed to prevent mosquito breeding on site.

11.2 TENTATIVE CONSTRUCTION ACTIVITIES IN THE COMING MONTH

11.2.1 Tentative construction activities to be undertaken in **December 2019** should be included:-

Contract 1

- Piling works at Portion II
- Welding of steel bracket for precast shell installation at Portion II
- Fabrication of bottom deck panels, top deck panels and diaphragm panels at Portion II
- Precast shell fabrication at Portion II

Contract 2

- Bored-Piling Works (Portion VI & VII & III)
- Pre-bored Socket H-Pile (Portion VI)
- Pre-drilling Works (Portion VI)
- Excavation Work (Portion VI)
- Sheet Pilling Work (Portion III)
- Drainage Installation Work (Portion III)
- Footing construction Work (Portion VI)

11.3 IMPACT FORECAST

11.3.1 Potential environmental impacts arising from the works of the Contracts 1 and Contract 2 include:

- Construction waste
- Air quality
- Construction noise
- Water quality

11.3.2 Environmental mitigation measures will be properly implemented and maintained as per the Mitigation Implementation Schedule in **Appendix L** to ensure site environmental performance is acceptable.

12. CONCLUSIONS AND RECOMMENDATIONS

12.1 CONCLUSIONS

12.1.1 This is the monthly EM&A report as presented the monitoring results and inspection findings for the reporting period from ***1st*** to ***30th November 2019***.

12.1.2 In the Reporting Period, no daytime construction noise monitoring results that triggered the Limit Level was recorded and no noise complaint (which is an Action Level exceedance) was received by the Project Consultant, EPD and the Contractors. However, five (5) evening additional construction noise monitoring results triggered the Limit Level. Investigation was undertaken by ET and it was considered that the exceedances recorded are unlikely caused by the Project.

12.1.3 In this Reporting Period, no 1-Hour TSP or 24-Hr TSP air quality monitoring exceedance was recorded. No NOE or the associated corrective actions were therefore issued.

12.1.4 For water quality monitoring, one (1) Action Level and three (3) Limit Level exceedances were recorded for Suspended Solid in the reporting period. Investigations were carried out and it was considered that the exceedances recorded are unlikely caused by the Project.

12.1.5 No documented complaint, notification of summons or prosecution were received and recorded for the Project.

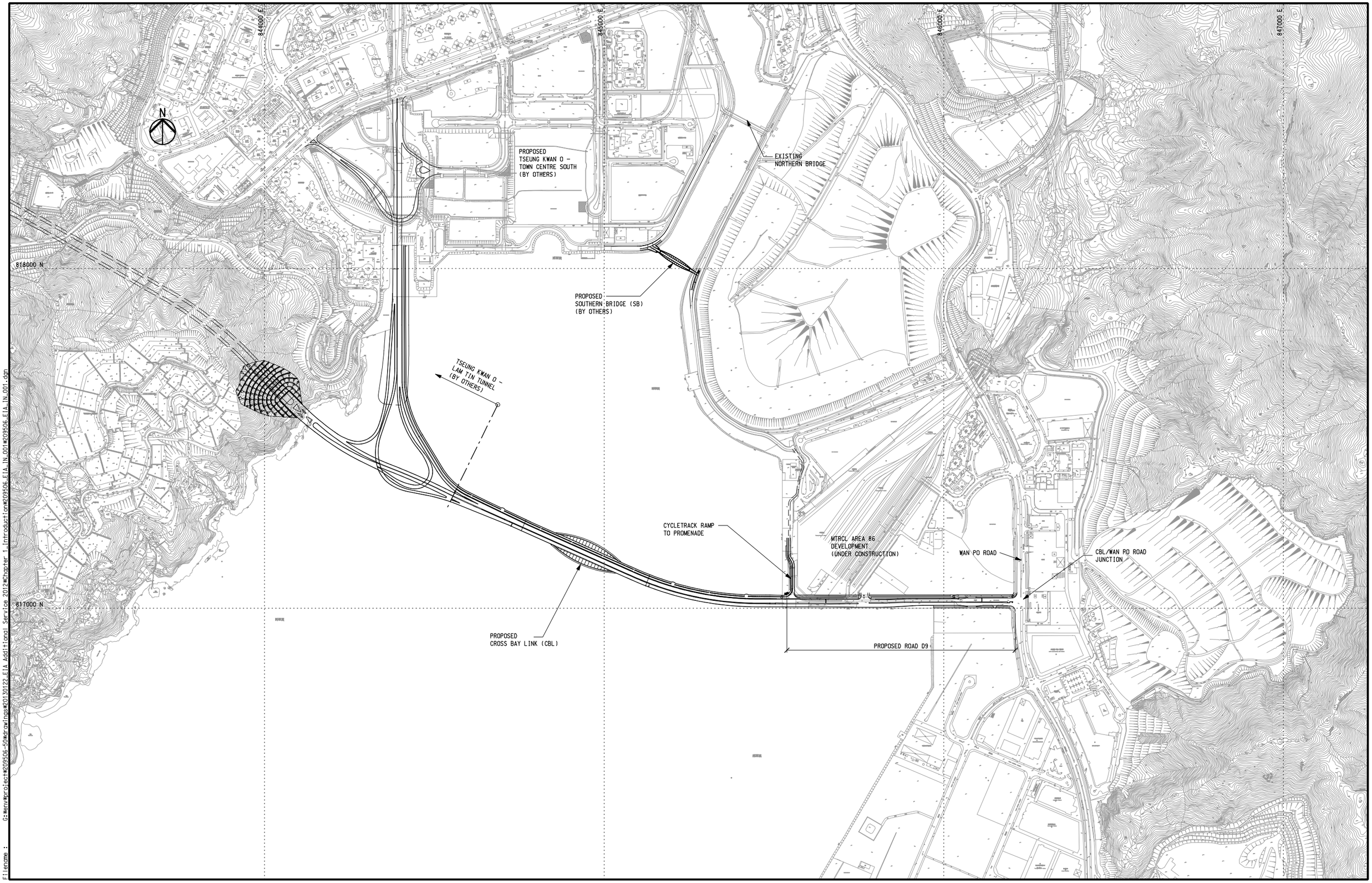
12.2 RECOMMENDATIONS

12.2.1 Due to the dry and windy season has begun in Hong Kong, the Contractors were reminded that all the works to undertaking must be fulfill environmental statutory requirement, especially construction dust come from working sites of the Project

12.2.2 In regards to the marine works, special attention should be paid on excavation works for the bridge pier foundations underway in which water quality mitigation measures such as erection of silt curtain should be properly implemented and maintained.

Appendix A

Project Layout Plan



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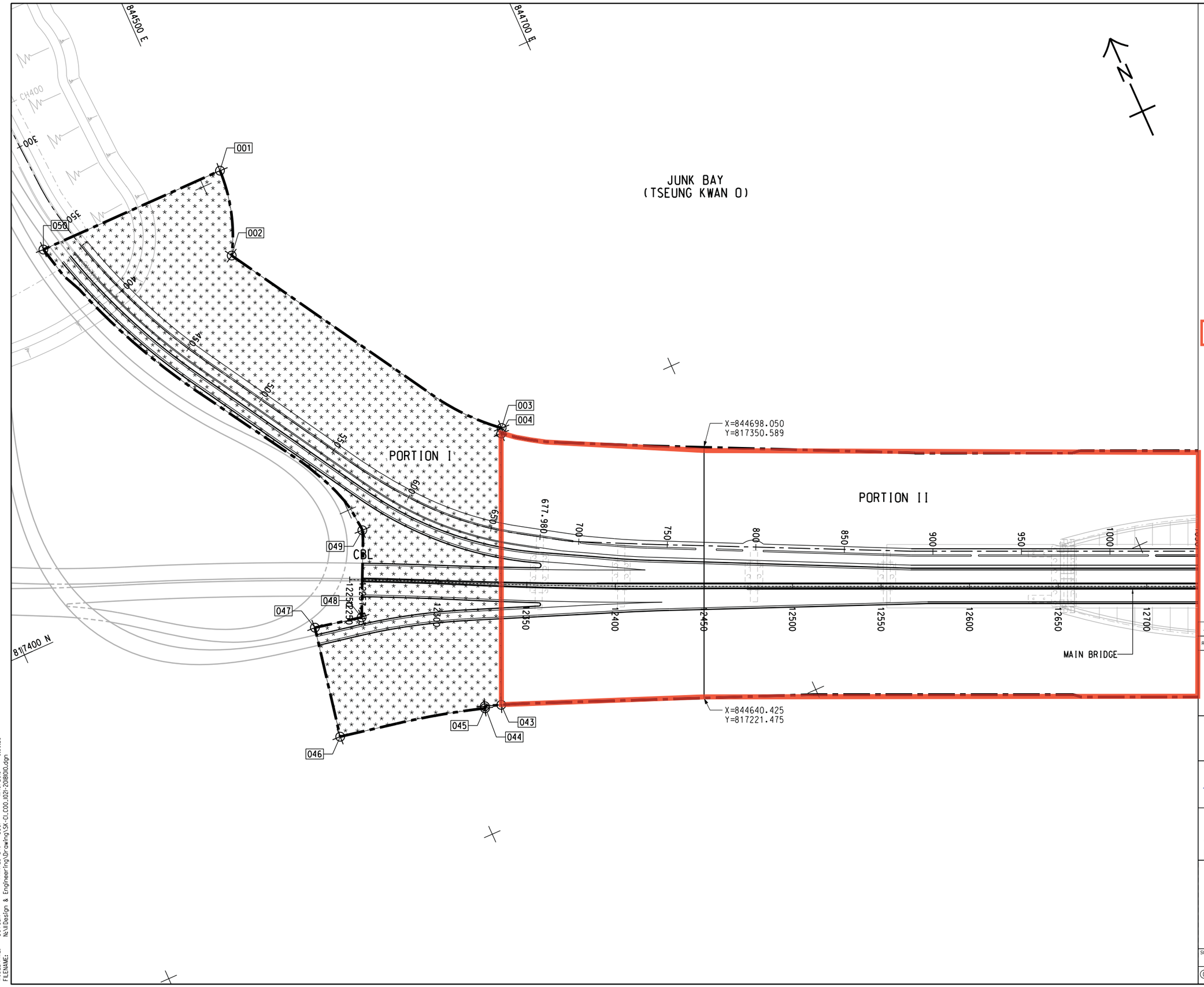
土木工程拓展署 Civil Engineering and Development Department	ARUP Ove Arup & Partners Hong Kong Limited	Job Title: **Agreement No. CE 43/2008(HY) Cross Bay Link, Tseung Kwan O – Investigation**
Drawing Title: GENERAL LAYOUT PLAN		

Rev.	Description	Date
B	SECOND ISSUE	01/13
A	FIRST ISSUE	07/11

Drawn: GL	Date: 01/13	Drawing No.: 209506/EIA/IN/001	
Checked: JP	Approved: ST		
Scale: 1:5000 on A1 & 1:10000 on A3		Status: FINAL	Rev.: B



NOTES:

1. ALL SETTING OUT POINTS SHOWN ON THIS SET OF DRAWINGS ARE FOR REFERENCE ONLY. THE EXACT LIMIT OF SITE BOUNDARY SHALL BE VERIFIED AND DETERMINED BY THE CONTRACTOR ON SITE.
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 60329339/C1/COO/1022 AND 1023.

LEGEND:

- SITE BOUNDARY
- PORTION I
- PORTION II
- PORTION III
- PORTION IV
- PORTION V
- PORTION VI
- PORTION VII
- WORKS AREA A
- WORKS AREA B
- Works area under Contract 1

Rev	Amendment	By	Chk.	App.	Date
A	FIRST ISSUE	HK	KN	AC	19/09/18

PROJECT MANAGER:

PROJECT MANAGER:

土木工程拓展署
Civil Engineering and Development Department

SUPERVISOR:

AECOM

CONTRACTOR:

中國路橋工程有限責任公司
China Road and Bridge Corp.

CONTRACT NO. AND TITLE:

Contract No. NE/2017/07

CROSS BAY LINK, TSEUNG KWAN O - MAIN BRIDGE AND ASSOCIATED WORKS

DRAWING TITLE:

SCALE @ A1
1 : 1000

DRAWING NO:

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SETTING OUT POINTS

POINTS	EASTING	NORTHING
001	844512.175	817604.422
002	844498.695	817557.993
003	844598.186	817407.065
004	844596.769	817404.339
005	845132.374	817153.641
006	845500.00	817088.580
007	845524.969	817088.226
008	845524.909	817236.307
009	845558.095	817236.307
010	845558.095	817195.885
011	845550.234	817174.288
012	845550.219	817158.042
013	845562.850	817139.744
014	845562.850	817035.700
015	845550.850	817035.670
016	845524.969	817035.670
017	846030.606	817036.089
018	846030.604	817038.387
019	846200.700	817038.418
020	846200.700	817038.796
021	846205.200	817042.796
022	846205.200	817138.796
023	846245.180	817138.796
024	846246.698	816900.099
025	846206.155	816900.099

SETTING OUT POINTS

POINTS	EASTING	NORTHING
026	846204.700	816926.589
027	846199.263	816926.590
028	846144.269	816926.589
029	846091.080	816926.744
030	845969.970	816926.504
031	846199.197	816975.364
032	846188.983	816993.582
033	846144.274	816999.997
034	846144.274	817000.722
035	846091.204	817000.679
036	845970.070	817000.581
037	845970.069	817000.099
038	845550.850	817000.099
039	845524.969	817000.099
040	845550.850	816953.291
041	845500.00	816952.636
042	845076.990	817029.022
043	844534.373	817264.536
044	844525.572	817267.627
045	844525.199	817266.527
046	844444.018	817285.203
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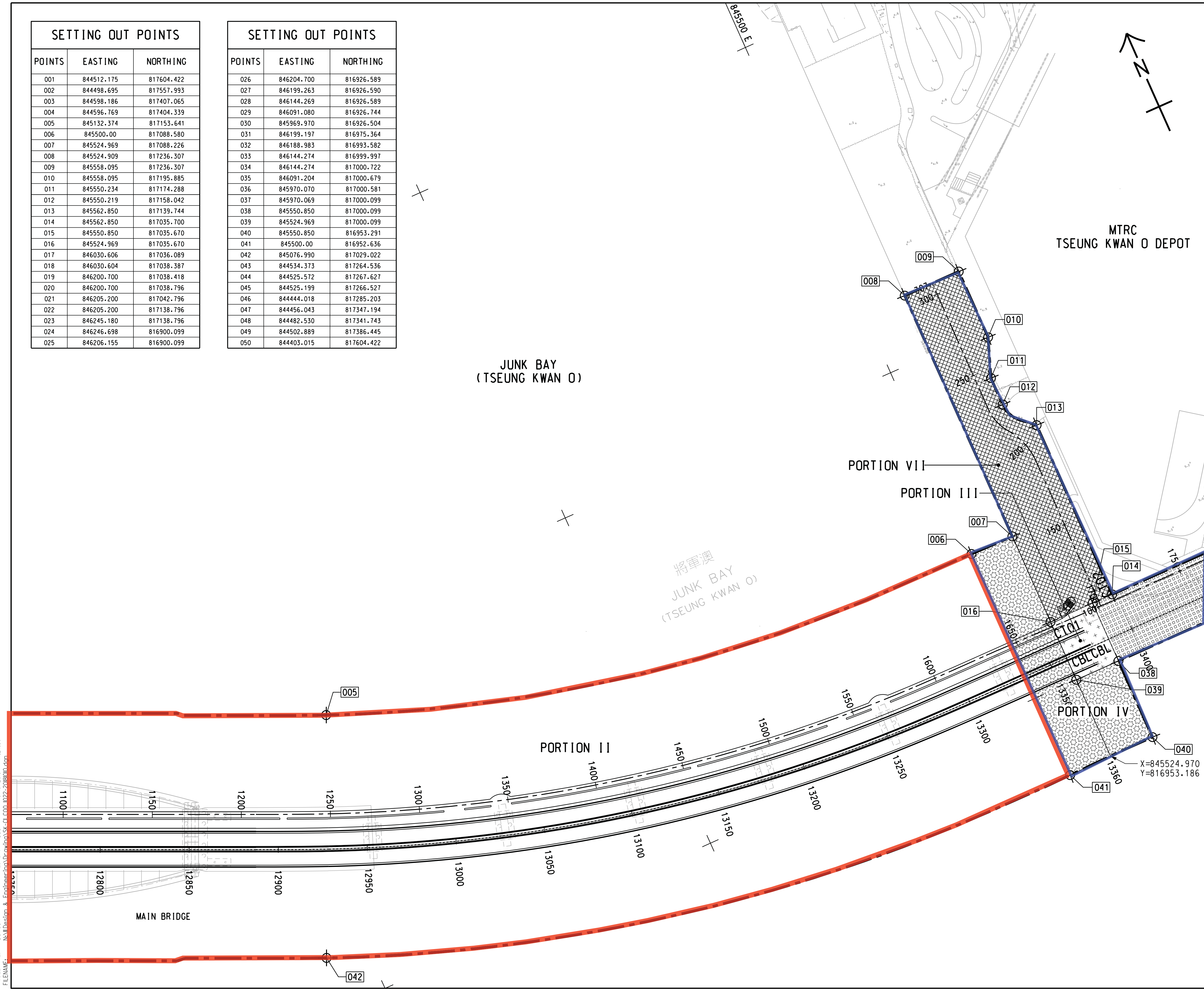

NOTE:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 60329339/C1/C00/1021 AND 1023.

LEGEND:

Works area under Contract 1

Works area under Contract 2

Rev	Amendment	By	Chk.	App.	Date

PROJECT MANAGER:

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

SUPERVISOR:

AECOM

CONTRACTOR:

CRB 中國路橋工程有限責任公司 China Road and Bridge Corp.

CONTRACT NO. AND TITLE:

Contract No. NE/2017/07

CROSS BAY LINK, TSEUNG KWAN O - MAIN BRIDGE AND ASSOCIATED WORKS

DRAWING TITLE:

SCALE @ A1

DRAWING NO:

NOTE:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 60329339/C1/C00/1021 AND 1022.

LEGEND:

Works area under Contract 1

Works area under Contract 2

845700 E

845900 E

846100 E

N

MTRC
TSEUNG KWAN O DEPOT

817200 N

LOHAS PARK

CUT LINE B-B
SEE DRAWING NO. 60329339/C1/C00/1022

PORTION VI

817000 N

E=845869.991
N=817000.014

E=845869.970
N=816926.504

Loading & Unloading Marine Area

100m

WORKS AREA A

WORKS AREA B

PORTION V

JUNK BAY
(TSEUNG KWAN O)

816800 N

017 018 019 020 021 022 023 024 025 026 027 028 029 030 031 032 033 034 035 036 037

Rev	Amendment	By	Chk.	App.	Date

PROJECT MANAGER:

PROJECT MANAGER:

土木工程拓展署
Civil Engineering and Development Department

SUPERVISOR:

AECOM

CONTRACTOR:

中國路橋工程有限責任公司
China Road and Bridge Corp.

CONTRACT NO. AND TITLE:

Contract No. NE/2017/07

CROSS BAY LINK, TSEUNG KWAN O - MAIN BRIDGE AND ASSOCIATED WORKS

DRAWING TITLE:

SCALE @ A1

DRAWING NO:

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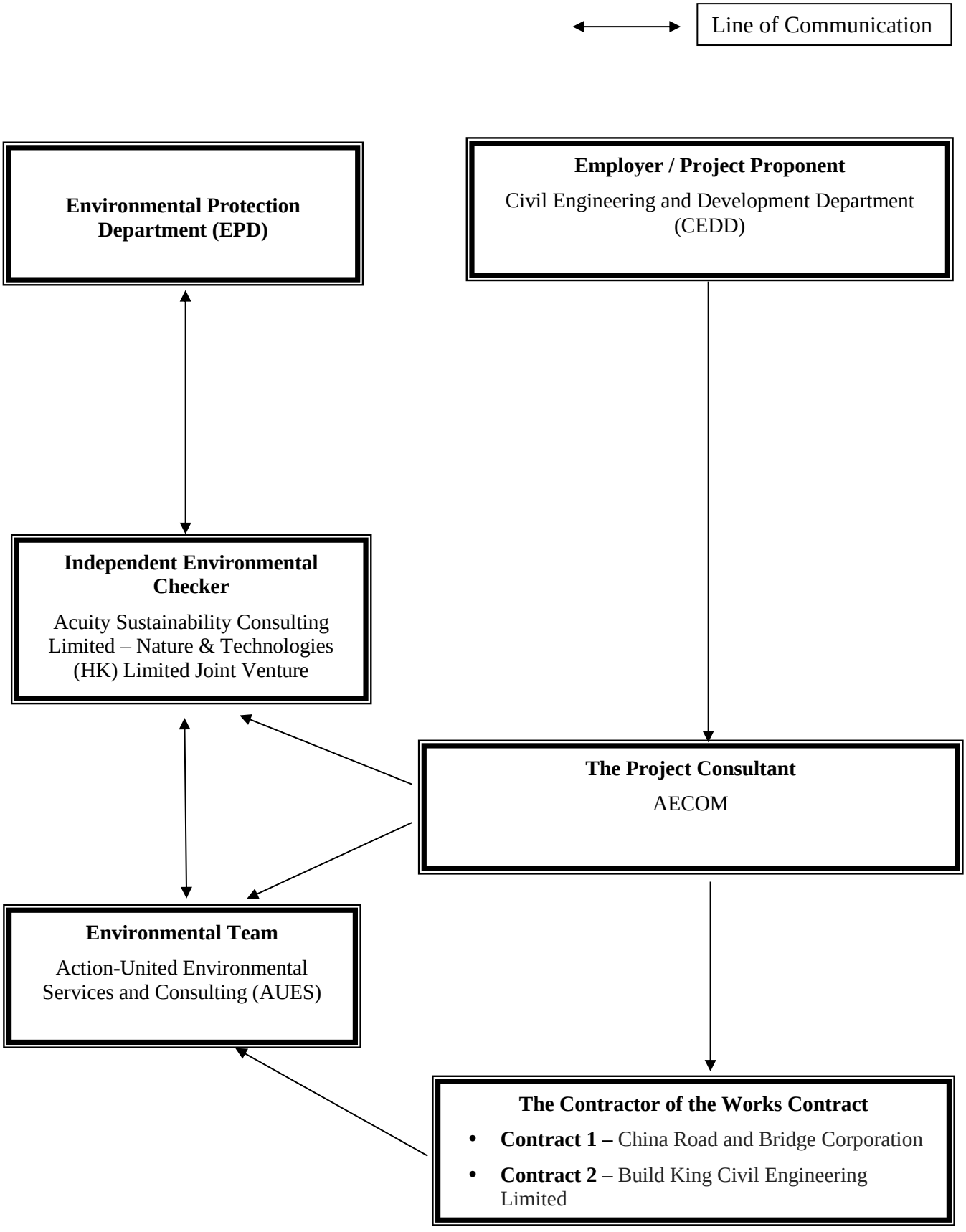
Appendix B

Project Organization Chart & Contact Details of Key Personnel for the Project

Project Organization Structure



Contact Details of Key Personnel for the Project

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
CEDD	Project Proponent	CK Lam	2301 1398	2714 5174
CEDD	Project Proponent	Sheri Leung	2301 1398	2714 5174
AECOM	Senior Resident Engineer	Jackie Chan	3595 8045	3596 6118
AECOM	Resident Engineer	Kingman Chan	3595 8045	3596 6118
ASC – N&T JV	Independent Environmental Checker	Kevin Li	2698 6833	2698 9383
ASC – N&T JV	Senior Environmental Consultant	Tandy Tse	2698 6833	2698 9383
AUES	Environmental Team Leader	T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Ben Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Martin Li	2959 6059	2959 6079
CRBC	Site Agent	Raymond Suen	9779 8871	2283 1689
CRBC	Environmental Officer	Calvin So	9724 6254	2283 1689
CRBC	Environmental Supervisor	Lila Lui	9790 5433	2283 1689
Build King	Site Agent	Stephen Leung	9071 7657	TBA
Build King	Environmental Officer	Michael Lam	6476 4299	TBA
Build King	Environmental Supervisor	Kenneth Hung	6170 9304	TBA

Legend:

CEDD (Employer) – Civil Engineering and Development Department

AECOM (Project Consultant) – AECOM Asia Co. Ltd.

ASC – N&T JV (IEC) – Acuity Sustainability Consulting Limited – Nature & Technologies (HK) Limited Joint Venture

AUES (ET) – Action-United Environmental Services & Consulting

CRBC (the Main Contractor of the Works Contract 1) – China Road and Bridge Corporation

Build King (the Main Contractor of the Works Contract 2) - Build King Civil Engineering Limited

Appendix C

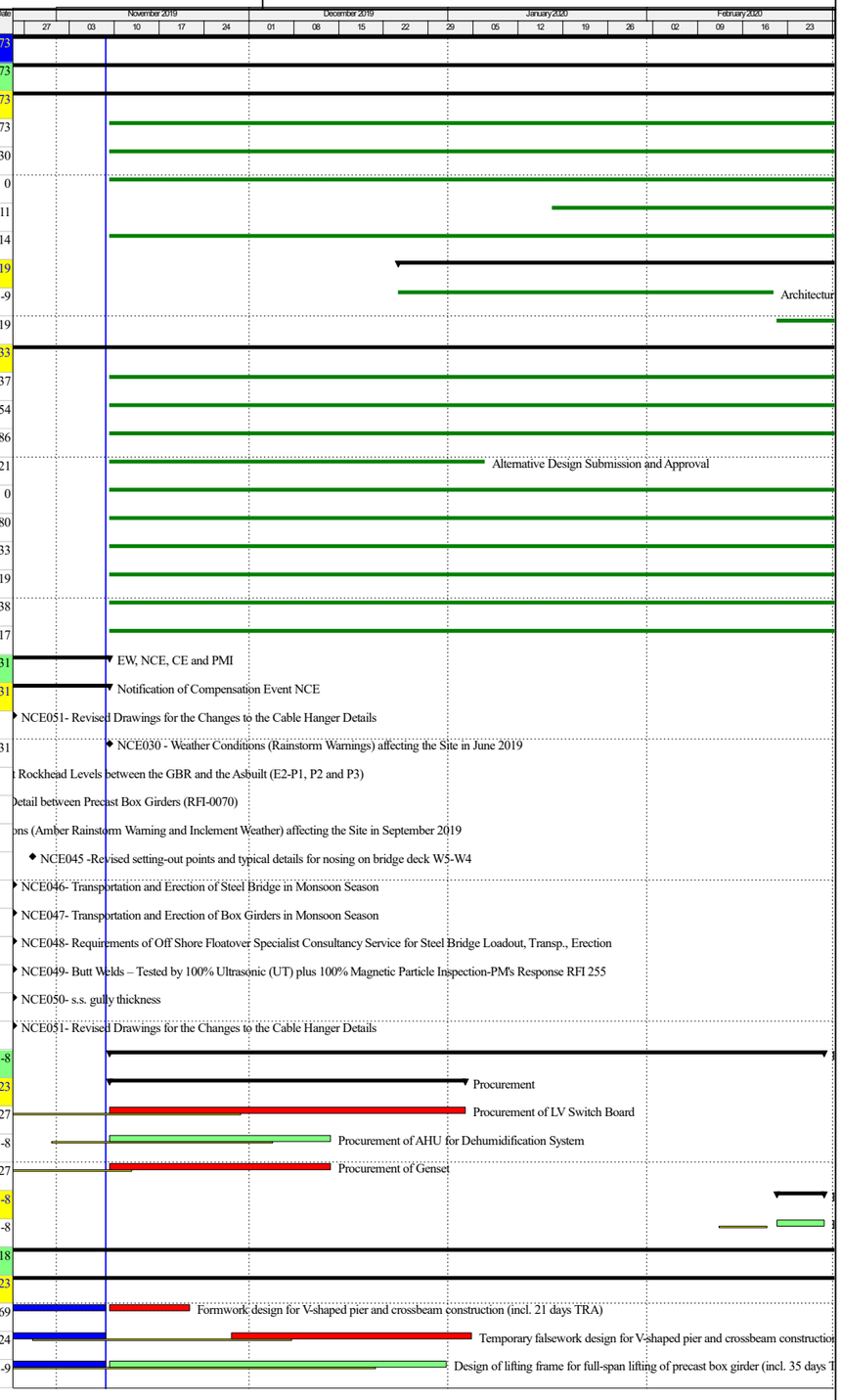
3-Month Rolling Construction Programme

Contract 1

Data Date : 08-Nov-19
Page: 1

Contract No. NE/2017/07 Cross Bay Link, Tseng Kwan O - Main Bridge and Associated Works

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Planned Start	Finish	Planned Finish	Total Float	Activity % Complete	TRA	Variance - Finish Date
Cross Bay Link,Tseung Kwan O Main Bridge and Associated Works		1484	913	29-Jun-18 A	29-Jun-18	09-May-22	21-Jul-22	312			73
Executive Summary Programme		1484	913	29-Jun-18 A	29-Jun-18	09-May-22	21-Jul-22	-86			73
ESP Section 2 of Works-All Works within Portion II,III,IV and VI		1240	913	17-Sep-18 A	28-Feb-19	09-May-22	21-Jul-22	-86			73
ESP10920	CBL Main Bridge and Marine Viaduct	1240	913	17-Sep-18 A	28-Feb-19	09-May-22	21-Jul-22	-86	26.37%	0	73
ESP10960	Piling Works	671	136	17-Nov-18 A	18-Apr-19	23-Mar-20	16-Feb-21	49	79.73%	0	330
ESP10980	Pile Cap	321	228	23-Jul-19 A	08-Aug-19	23-Jun-20	23-Jun-20	36	28.97%	0	0
ESP11000	Pier	239	239	17-Jan-20	20-Dec-19	11-Sep-20	31-Aug-20	109	0%	0	-11
ESP11160	E&M Works for CBL Main Bridge and Marine Viaduct	913	913	09-Nov-19	07-Nov-19	09-May-22	25-Apr-22	-86	0%	0	-14
ESP Section 5 of the Works-All Works within Portion V (CBL E&M Plantroom)		405	405	24-Dec-19	14-Dec-19	31-Jan-21	12-Jan-21	-19			-19
ESP11280	Architectural & External Works	59	59	24-Dec-19	14-Dec-19	20-Feb-20	11-Feb-20	-13	0%	0	-9
ESP11300	E&M Works and FSD Inspection	346	346	21-Feb-20	12-Feb-20	31-Jan-21	12-Jan-21	-19	0%	0	-19
Preliminaries, Contractor's Design & Method Statement Submission & Approval		1105	607	29-Jun-18 A	29-Jun-18	07-Jul-21	04-Jun-21	19			-33
ESP10400	Temporary Works Design	695	379	13-Aug-18 A	13-Aug-18	21-Nov-20	07-Jul-20	45	45.47%	0	-137
ESP10420	Method Statement Submission for Major Construction Works	736	451	27-Aug-18 A	27-Aug-18	01-Feb-21	31-Aug-20	2	38.74%	0	-154
ESP10440	Contractor's Design Submission and Approval	869	495	06-Aug-18 A	06-Aug-18	17-Mar-21	21-Dec-20	131	43.04%	0	-86
ESP10460	Alternative Design Submission and Approval	397	59	07-Aug-18 A	07-Aug-18	06-Jan-20	07-Sep-19	1	85.14%	0	-121
ESP10480	General Submission	843	345	29-Jun-18 A	29-Jun-18	18-Oct-20	18-Oct-20	58	59.07%	0	0
ESP10500	Project Manager's Acceptance of Subcontractors	556	115	14-Aug-18 A	21-Feb-19	02-Mar-20	29-Aug-20	346	79.32%	0	180
ESP10560	Procurement, Factory Acceptance Test, Delivery and Temporary Storage of Major E&M Equipment	607	607	09-Nov-19	09-Oct-19	07-Jul-21	04-Jun-21	-17	0%	0	-33
ESP10600	Precasting of Precast Shell	745	431	08-Nov-18 A	28-Apr-19	12-Jan-21	11-May-21	155	42.15%	0	119
ESP10620	Fabrication of Precast Box Girder	713	395	10-Nov-18 A	13-May-19	07-Dec-20	24-Apr-21	-14	44.6%	0	138
ESP10640	Fabrication of Steel Arch Bridge and Side Spans	623	425	28-Mar-19 A	08-Apr-19	06-Jan-21	20-Dec-20	-69	31.78%	0	-17
EW, NCE, CE and PMI		0	0	03-Oct-19 A	09-Oct-19	09-Nov-19	09-Oct-19	1225			-31
Notification of Compensation Event NCE		0	0	03-Oct-19 A	09-Oct-19	09-Nov-19	09-Oct-19	1225			-31
NCE01001	NCE051- Revised Drawings for the Changes to the Cable Hanger Details	0	0	25-Oct-19 A					100%	0	
NCE0581	NCE030 - Weather Conditions (Rainstorm Warnings) affecting the Site in June 2019	0	0	09-Nov-19	09-Oct-19			1225	0%	0	-31
NCE0821	NCE042 - Risk of Different Rockhead Levels between the GBR and the Asbuilt (E2-P1, P2 and P3)	0	0	03-Oct-19 A					100%	0	
NCE0841	NCE043 - Revised U Bar Detail between Precast Box Girders (RFI-0070)	0	0	03-Oct-19 A					100%	0	
NCE0861	NCE044 - Weather Conditions (Amber Rainstorm Warning and Inclement Weather) affecting the Site in September 2019	0	0	03-Oct-19 A					100%	0	
NCE0881	NCE045 -Revised setting-out points and typical details for nosing on bridge deck W5-W4	0	0	28-Oct-19 A					100%	0	
NCE0901	NCE046- Transportation and Erection of Steel Bridge in Monsoon Season	0	0	25-Oct-19 A					100%	0	
NCE0921	NCE047- Transportation and Erection of Box Girders in Monsoon Season	0	0	25-Oct-19 A					100%	0	
NCE0941	NCE048- Requirements of Off Shore Floatover Specialist Consultancy Service for Steel Bridge Loadout, Transp., Erection	0	0	25-Oct-19 A					100%	0	
NCE0961	NCE049- Butt Welds – Tested by 100% Ultrasonic (UT) plus 100% Magnetic Particle Inspection-PM's Response RFI 255	0	0	25-Oct-19 A					100%	0	
NCE0981	NCE050- s.s. gully thickness	0	0	25-Oct-19 A					100%	0	
NCE1001	NCE051- Revised Drawings for the Changes to the Cable Hanger Details	0	0	25-Oct-19 A					100%	0	
Procurement, Factory Acceptance Test, Delivery and Temporary Storage of Major E&M Equip		90	90	09-Nov-19	09-Oct-19	28-Feb-20	19-Feb-20	35			-8
Procurement		45	45	09-Nov-19	09-Oct-19	03-Jan-20	04-Dec-19	20			-23
P-PC10120	Procurement of LV Switch Board	45	45	09-Nov-19	09-Oct-19	03-Jan-20	29-Nov-19	-9	0%	0	-27
P-PC10140	Procurement of AHU for Dehumidification System	30	30	09-Nov-19	31-Oct-19	13-Dec-19	04-Dec-19	35	0%	0	-8
P-PC10160	Procurement of Genset	30	30	09-Nov-19	09-Oct-19	13-Dec-19	12-Nov-19	-9	0%	0	-27
Factory Acceptance Test		7	7	21-Feb-20	12-Feb-20	28-Feb-20	19-Feb-20	35			-8
P-PC10080	Factory Acceptance Test for AHU for Dehumidification System	7	7	21-Feb-20	12-Feb-20	28-Feb-20	19-Feb-20	35	0%	0	-8
Preliminaries, Contractor's Design & Method Statement Submission & Approval		680	451	28-Mar-19 A	08-Apr-19	01-Feb-21	14-Jan-21	2			-18
Temporary Works Design		262	141	06-Jun-19 A	21-Jun-19	21-Apr-20	25-Mar-20	47			-23
TDS2010	Formwork design for V-shaped pier and crossbeam construction (incl. 21 days TRA)	63	11	06-Jun-19 A	21-Jun-19	21-Nov-19	02-Sep-19	13	82.54%	21	-69
TDS2020	Temporary falsework design for V-shaped pier and crossbeam construction (incl. 21 days TRA)	36	33	10-Oct-19 A	28-Oct-19	04-Jan-20	07-Dec-19	13	8.33%	21	-24
TDS2080	Design of lifting frame for full-span lifting of precast box girder (incl. 35 days TRA)	63	45	14-Oct-19 A	09-Oct-19	31-Dec-19	20-Dec-19	131	28.57%	35	-9



Remaining Level of Effort | Remaining Work | Milestone
Primary Baseline | Critical Remaining Work | Summary
Actual Work | Baseline Milestone

CRBC
Three Month Rolling Programme

Date	Revision	Checked	Approved
08-Nov-19	Monthly updated on 08 Nov 2019		

Data Date : 08-Nov-19

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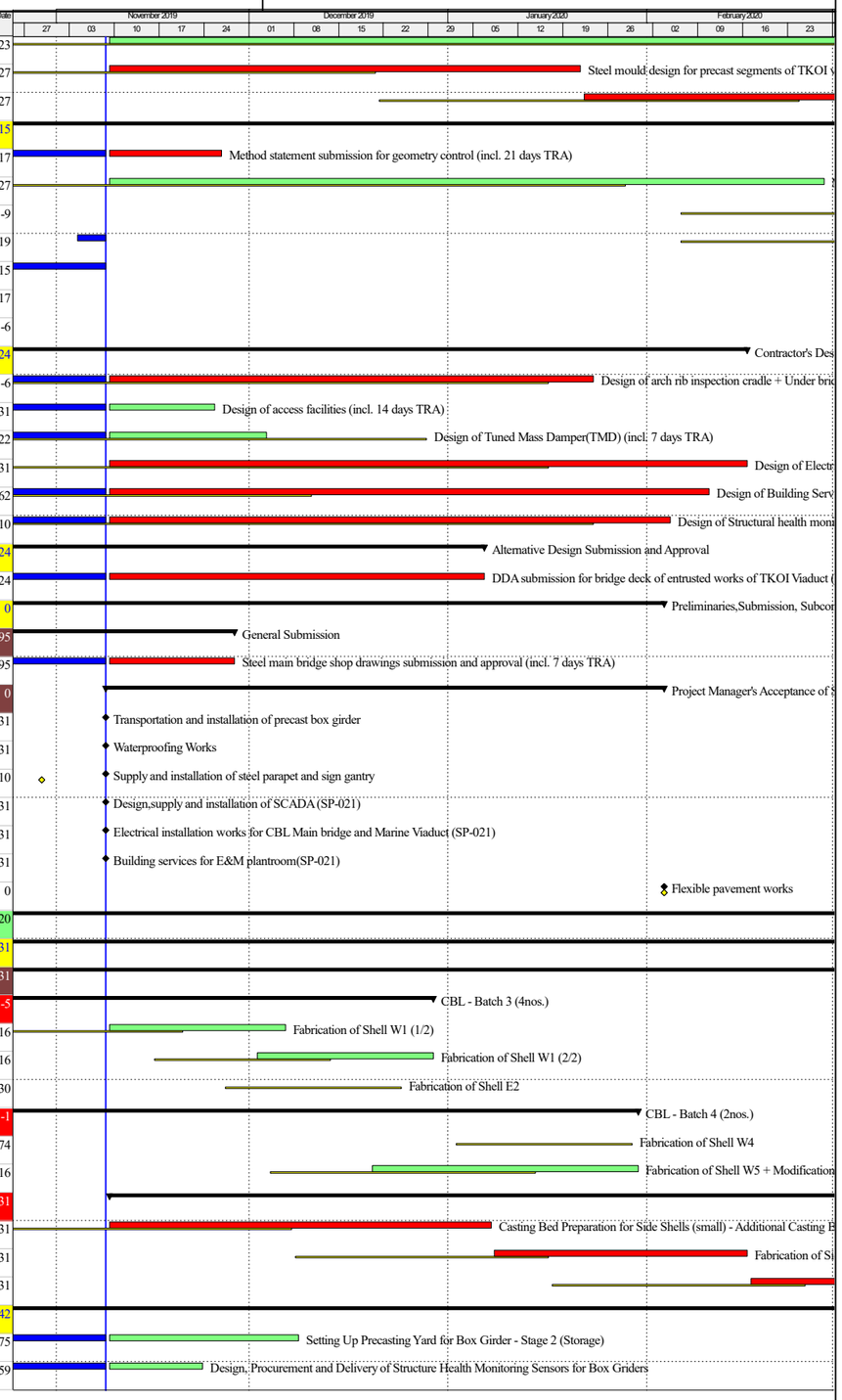
Contract No. NE/2017/07 Cross Bay Link, Tseng Kwan O - Main Bridge and Associated Works

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Planned Start	Finish	Planned Finish	Total Float	Activity % Complete	TRA	Variance - Finish Date
TDS2140	Design of temporary works for superstructure of steel bridge (incl. 35 days TRA)	141	141	09-Nov-19	14-Oct-19	21-Apr-20	25-Mar-20	47	0%	35	-23
TDS2160	Steel mould design for precast segments of TKOI viaducts (incl. 21 days TRA)	63	63	09-Nov-19	09-Oct-19	21-Jan-20	20-Dec-19	-14	0%	21	-27
TDS2180	Design of Pier bracket for erection of pier-head segments (incl. 21 days TRA)	56	56	22-Jan-20	21-Dec-19	26-Mar-20	24-Feb-20	-14	0%	21	-27
Method Statement Submission for Major Construction Works		567	386	28-Mar-19 A	26-Apr-19	01-Feb-21	14-Jan-21	2			-15
MDS1135	Method statement submission for geometry control (incl. 21 days TRA)	67	15	28-Mar-19 A	26-Apr-19	26-Nov-19	12-Jul-19	-63	77.61%	21	-117
MDS1140	Method statement submission for assembly of steel arch bridge (incl. 35 days TRA)	96	96	09-Nov-19	09-Oct-19	28-Feb-20	28-Jan-20	92	0%	35	-27
MDS1170	Method statement submission for delivery of precast box girder (incl. 35 days TRA)	61	43	19-Oct-20 A	06-Feb-20	27-Apr-20	16-Apr-20	30	29.51%	35	-9
MDS1210	Method statement submission for installation of precast box girder (incl. 35 days TRA)	81	73	04-Nov-19 A	06-Feb-20	01-Jun-20	09-May-20	0	9.88%	35	-19
MDS1220	Method statement submission for delivery of steel bridge deck of side span (incl. 35 days TRA)	81	69	23-Aug-19 A	13-Oct-20	01-Feb-21	14-Jan-21	2	15%	35	-15
MDS1230	Method statement submission for installation of the steel bridge deck of side span (incl. 21 days TRA)	67	57	15-Jul-20 A	13-Oct-20	18-Jan-21	29-Dec-20	14	14.93%	21	-17
MDS1270	Method statement submission for installation of steel arch bridge (incl. 21 days TRA)	82	62	15-Jul-20 A	29-Aug-20	09-Dec-20	02-Dec-20	38	24.39%	21	-6
Contractor's Design Submission and Approval		265	100	15-Apr-19 A	28-May-19	16-Feb-20	23-Jan-20	3			-24
CDS1040	Design of arch rib inspection cradle + Under bridge gantry	86	65	16-Sep-19 A	09-Oct-19	23-Jan-20	16-Jan-20	-44	24.42%	0	-6
CDS1060	Design of access facilities (incl. 14 days TRA)	125	14	05-May-19 A	28-May-19	25-Nov-19	19-Oct-19	40	88.8%	14	-31
CDS1080	Design of Tuned Mass Damper(TMD) (incl. 7 days TRA)	150	21	15-Apr-19 A	08-Jul-19	03-Dec-19	28-Dec-19	67	86%	14	22
CDS1160	Design of Electrical system for the E&M plant room	100	100	09-Nov-19	09-Oct-19	16-Feb-20	16-Jan-20	-22	0%	0	-31
CDS1180	Design of Building Services system for the E&M plant room	100	94	02-Sep-19 A	02-Sep-19	10-Feb-20	10-Dec-19	-10	6%	0	-62
CDS1200	Design of Structural health monitoring system (incl. 14 days TRA)	172	75	12-Jun-19 A	08-Jul-19	04-Feb-20	23-Jan-20	-7	56.4%	14	-10
Alternative Design Submission and Approval		111	50	30-Mar-19 A	08-Apr-19	06-Jan-20	14-Aug-19	1			-124
ADS1030	DDA submission for bridge deck of entrusted works of TKOI Viaduct (incl. 35 days TRA)	111	50	30-Mar-19 A	08-Apr-19	06-Jan-20	14-Aug-19	1	54.95%	35	-124
Preliminaries,Submission, Subcontracting and Procurement		302	87	28-Mar-19 A	08-Apr-19	03-Feb-20	03-Feb-20	214			0
General Submission		140	20	28-Mar-19 A	08-Apr-19	28-Nov-19	25-Aug-19	-90			-95
P-GS1480	Steel main bridge shop drawings submission and approval (incl. 7 days TRA)	140	20	28-Mar-19 A	08-Apr-19	28-Nov-19	25-Aug-19	-90	85.71%	7	-95
Project Manager's Acceptance of Subcontractors		87	87	08-Nov-19	08-Oct-19	03-Feb-20	03-Feb-20	214			0
P-SP1400	Transportation and installation of precast box girder	0	0			08-Nov-19	08-Oct-19	1	0%	0	-31
P-SP1540	Waterproofing Works	0	0			08-Nov-19	08-Oct-19	206	0%	0	-31
P-SP1560-0	Supply and installation of steel parapet and sign gantry	0	0			08-Nov-19	29-Oct-19	301	0%	0	-10
P-SP1680	Design,supply and installation of SCADA (SP-021)	0	0			08-Nov-19	08-Oct-19	252	0%	0	-31
P-SP1700	Electrical installation works for CBL Main bridge and Marine Viaduct (SP-021)	0	0			08-Nov-19	08-Oct-19	47	0%	0	-31
P-SP1760	Building services for E&M plantroom(SP-021)	0	0			08-Nov-19	08-Oct-19	-22	0%	0	-31
P-SP1770	Flexible pavement works	0	0			03-Feb-20	03-Feb-20	-32	0%	0	0
Precasting & Fabrication Works		469	291	08-Dec-18 A	28-May-19	25-Aug-20	05-Aug-20	-27			-20
Fabrication of Precast Shell and Precast Segments		140	140	25-Jul-19 A	09-Oct-19	27-Mar-20	25-Feb-20	35			-31
Precast Shell		140	140	25-Jul-19 A	09-Oct-19	27-Mar-20	25-Feb-20	35			-31
CBL - Batch 3 (4nos.)		51	51	04-Aug-19 A	24-Oct-19	29-Dec-19	24-Dec-19	80			-5
P-PS3068	Fabrication of Shell W1 (1/2)	28	28	09-Nov-19	24-Oct-19	06-Dec-19	20-Nov-19	35	0%	0	-16
P-PS3069	Fabrication of Shell W1 (2/2)	28	28	02-Dec-19	16-Nov-19	29-Dec-19	13-Dec-19	35	0%	0	-16
P-PS3138	Fabrication of Shell E2	28	0	04-Aug-19 A	27-Nov-19	16-Aug-19 A	24-Dec-19		100%	0	130
CBL - Batch 4 (2nos.)		42	42	25-Jul-19 A	04-Dec-19	30-Jan-20	29-Jan-20	92			-1
P-PS3142	Fabrication of Shell W4	28	0	25-Jul-19 A	02-Jan-20	08-Aug-19 A	29-Jan-20		100%	0	174
P-PS3143	Fabrication of Shell W5 + Modification of Casting Bed (2 weeks)	42	42	20-Dec-19	04-Dec-19	30-Jan-20	14-Jan-20	92	0%	0	-16
CBL - E1 and W1 Side Shells (4nos.)		140	140	09-Nov-19	09-Oct-19	27-Mar-20	25-Feb-20	18			-31
P-PS9010	Casting Bed Preparation for Side Shells (small) - Additional Casting Beds	60	60	09-Nov-19	09-Oct-19	07-Jan-20	07-Dec-19	-16	0%	0	-31
P-PS9020	Fabrication of Side Shells (small) x2 Sides E1	40	40	08-Jan-20	08-Dec-19	16-Feb-20	16-Jan-20	-16	0%	0	-31
P-PS9040	Fabrication of Side Shells (small) x2 Sides W1	40	40	17-Feb-20	17-Jan-20	27-Mar-20	25-Feb-20	18	0%	0	-31
Fabrication of Precast Box Girder		379	214	08-Dec-18 A	28-May-19	09-Jun-20	28-Apr-20	16			-42
P-BG1415	Setting Up Precasting Yard for Box Girder - Stage 2 (Storage)	120	30	08-Dec-18 A	28-May-19	08-Dec-19	24-Sep-19	162	75%	0	-75
P-BG1435	Design, Procurement and Delivery of Structure Health Monitoring Sensors for Box Griders	80	15	12-Jun-19 A	08-Jul-19	23-Nov-19	25-Sep-19	35	81.25%	0	-59



Remaining Level of Effort | Remaining Work | Milestone
Primary Baseline | Critical Remaining Work | Summary
Actual Work | Baseline Milestone

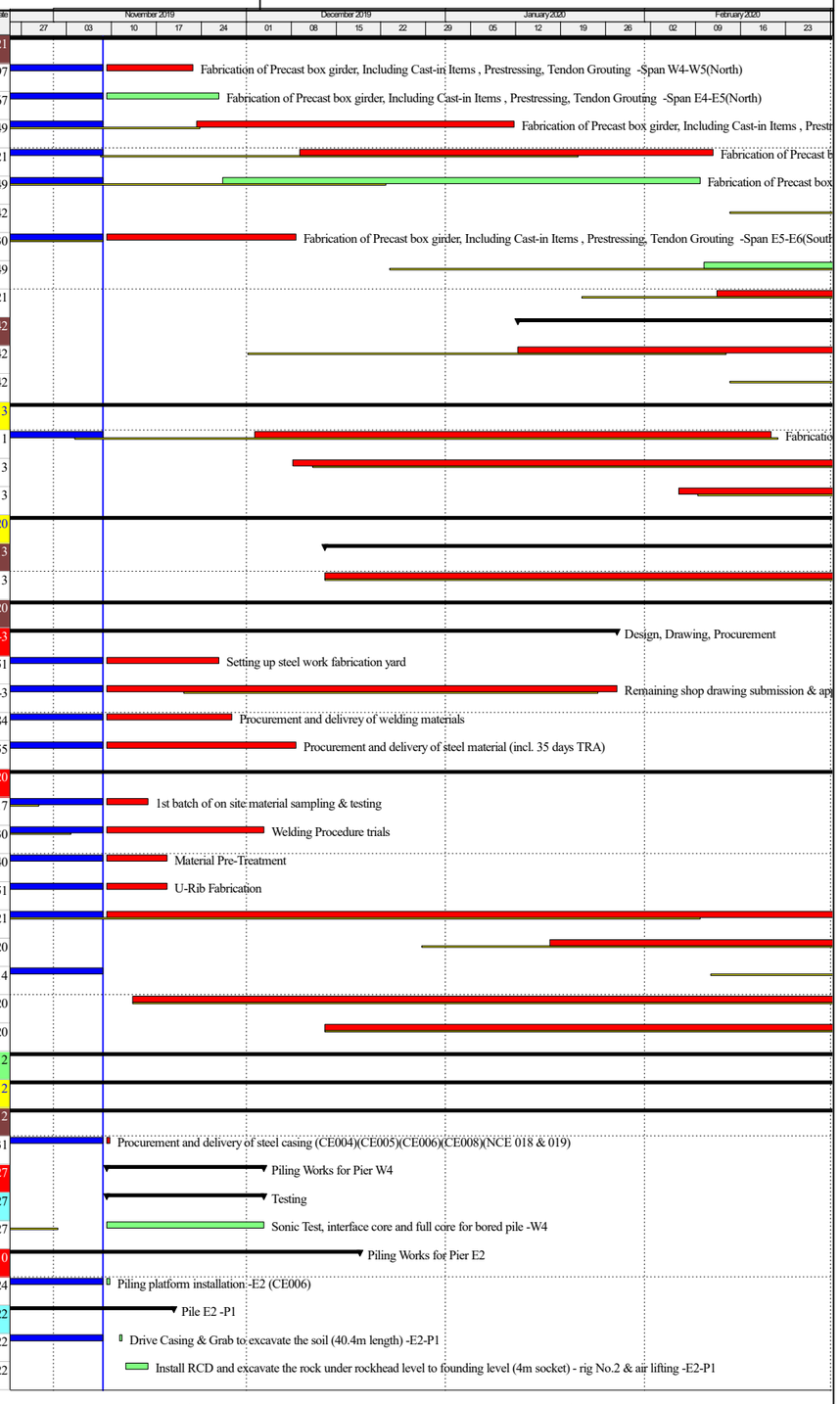
CRBC

Three Month Rolling Programme

Date	Revision	Checked	Approved
08-Nov-19	Monthly updated on 08 Nov 2019		

Contract No. NE/2017/07 Cross Bay Link, Tseng Kwan O - Main Bridge and Associated Works

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Planned Start	Finish	Planned Finish	Total Float	Activity % Complete	TRA	Variance - Finish Date
Box Girder Fabrication - 1st Batch (8 Pieces)		328	170	16-May-19 A	04-Jun-19	26-Apr-20	05-Apr-20	60			-21
P-BG1381	Fabrication of Precast box girder, Including Cast-in Items , Prestressing, Tendon Grouting -Span W4-W5(North)	75	14	16-May-19 A	04-Jun-19	22-Nov-19	17-Aug-19	9	81.33%	0	-97
P-BG1382	Fabrication of Precast box girder, Including Cast-in Items , Prestressing, Tendon Grouting -Span E4-E5(North)	75	18	29-Jun-19 A	08-Jul-19	26-Nov-19	20-Sep-19	62	76%	0	-67
P-BG1383	Fabrication of Precast box girder, Including Cast-in Items , Prestressing, Tendon Grouting -Span W3-W4(South)	75	50	26-Aug-19 A	10-Sep-19	11-Jan-20	23-Nov-19	9	33.33%	0	-49
P-BG1384	Fabrication of Precast box girder, Including Cast-in Items , Prestressing, Tendon Grouting -Span E5-E6 (North)	75	65	04-Sep-19 A	08-Nov-19	11-Feb-20	21-Jan-20	-14	13.33%	0	-21
P-BG1390	Fabrication of Precast box girder, Including Cast-in Items , Prestressing, Tendon Grouting -Span E6-E7(South)	75	75	09-Oct-19 A	09-Oct-19	09-Feb-20	22-Dec-19	62	0%	0	-49
P-BG1395	Transfer to Stockpiling Area - 1st Batch (by STMP)	20	20	27-Mar-20	14-Feb-20	15-Apr-20	04-Mar-20	53	0%	0	-42
P-BG1406	Fabrication of Precast box girder, Including Cast-in Items , Prestressing, Tendon Grouting -Span E5-E6(South)	75	30	26-Aug-19 A	26-Aug-19	08-Dec-19	08-Nov-19	-14	60%	0	-30
P-BG1408	Fabrication of Precast box girder, Including Cast-in Items , Prestressing, Tendon Grouting -Span E6-E7(North)	75	75	10-Feb-20	23-Dec-19	24-Apr-20	06-Mar-20	62	0%	0	-49
P-BG1425	Fabrication of Precast box girder, Including Cast-in Items , Prestressing, Tendon Grouting -Span E7-Abut(North)	75	75	12-Feb-20	22-Jan-20	26-Apr-20	05-Apr-20	-14	0%	0	-21
Box Girder Fabrication - 2nd Batch (5 Pieces)		150	150	12-Jan-20	01-Dec-19	09-Jun-20	28-Apr-20	9			-42
P-BG1392	Fabrication of Precast box girder, Including Cast-in Items , Prestressing, Tendon Grouting -Span W2-W3(South)	75	75	12-Jan-20	01-Dec-19	26-Mar-20	13-Feb-20	9	0%	0	-42
P-BG1409	Fabrication of Precast box girder, Including Cast-in Items , Prestressing, Tendon Grouting -Span W3-W4(North)	75	75	27-Mar-20	14-Feb-20	09-Jun-20	28-Apr-20	9	0%	0	-42
Fabrication of Precast Pier		254	226	16-Sep-19 A	04-Nov-19	14-Jul-20	17-Jul-20	15			3
P-PF1230	Fabrication of Precast pier (1st batch 4 nos) - E4, E5, E6, E7 (Include 10 days TRA)	110	81	16-Sep-19 A	04-Nov-19	20-Feb-20	21-Feb-20	15	26.36%	10	1
P-PF1420	Fabrication of Precast pier (2nd batch 4 nos) - W2, W3, E2, E3 (include 10 days TRA)	180	180	08-Dec-19	11-Dec-19	04-Jun-20	07-Jun-20	15	0%	10	3
P-PF1440	Fabrication of Precast pier (3rd batch 2 nos) (incl. 10 days TRA) - W4, W5	160	160	06-Feb-20	09-Feb-20	14-Jul-20	17-Jul-20	15	0%	10	3
Fabrication of Steel Arch Bridge and Side Spans		458	291	19-Apr-19 A	08-Jun-19	25-Aug-20	05-Aug-20	-41			-20
Fabrication of Side Spans		161	161	13-Dec-19	13-Dec-19	21-May-20	08-May-20	-90			-13
P-PF1080	Fabrication of steel deck of Side Spans - C01 to C07	161	161	13-Dec-19	13-Dec-19	21-May-20	08-May-20	-90	0%	7	-13
Fabrication of Steel Arch Bridge		458	291	19-Apr-19 A	08-Jun-19	25-Aug-20	05-Aug-20	-41			-20
Design, Drawing, Procurement		231	80	19-Apr-19 A	08-Jun-19	27-Jan-20	24-Jan-20	-51			-3
P-PF1040	Setting up steel work fabrication yard	60	18	08-Aug-19 A	08-Aug-19	26-Nov-19	06-Oct-19	-48	70%	0	-51
P-PF1045	Remaining shop drawing submission & approval (NCE 014)	65	80	29-Jun-19 A	21-Nov-19	27-Jan-20	24-Jan-20	-51	0%	0	-3
P-PF1047	Procurement and delivrey of welding materials	90	20	06-Jun-19 A	08-Jun-19	28-Nov-19	05-Sep-19	-81	77.78%	0	-84
P-PF1050	Procurement and delivery of steel material (incl. 35 days TRA)	125	30	19-Apr-19 A	12-Jun-19	08-Dec-19	14-Oct-19	-86	76%	35	-55
Fabrication and sub-assembly Work		399	291	25-Jun-19 A	06-Aug-19	25-Aug-20	05-Aug-20	-41			-20
P-PF1055	1st batch of on site material sampling & testing	20	7	25-Jun-19 A	10-Oct-19	15-Nov-19	29-Oct-19	-57	65%	0	-17
P-PF1065	Welding Procedure trials	90	25	29-Jun-19 A	06-Aug-19	03-Dec-19	03-Nov-19	-81	72.22%	0	-30
P-PF1095	Material Pre-Treatment	41	10	30-Aug-19 A	30-Aug-19	18-Nov-19	09-Oct-19	-90	75.61%	0	-40
P-PF1097	U-Rib Fabrication	30	10	30-Aug-19 A	30-Aug-19	18-Nov-19	28-Sep-19	-90	66.67%	0	-51
P-PF1101	Fabrication of panel plate for C08 to C14	177	114	30-Aug-19 A	30-Aug-19	01-Mar-20	09-Feb-20	-90	35.59%	7	-21
P-PF1110	Sub-assembly of Main Span - Decking C08 to C14	120	120	17-Jan-20	28-Dec-19	15-May-20	25-Apr-20	-34	0%	0	-20
P-PF1120	Fabrication of Main Span - Decking C15- C21	190	171	10-Oct-19 A	11-Feb-20	19-Aug-20	05-Aug-20	-85	10%	7	-14
P-PF1170	Fabrication of Main Span - Arch rib NG01 to NG19	257	257	13-Nov-19	13-Nov-19	26-Jul-20	06-Jul-20	-90	0%	7	-20
P-PF1190	Fabrication of Main Span - Arch rib SG01 to NG19	257	257	13-Dec-19	13-Dec-19	25-Aug-20	05-Aug-20	-41	0%	7	-20
Section 2 of Works-All Works within Portion II,III,IV and VI		496	291	23-Nov-18 A	18-Apr-19	25-Aug-20	13-Aug-20	345			-12
CBL Main Bridge and Marine Viaduct		496	291	23-Nov-18 A	18-Apr-19	25-Aug-20	13-Aug-20	345			-12
Piling Works		341	136	23-Nov-18 A	18-Apr-19	23-Mar-20	11-Mar-20	49			-12
S2-PW1010	Procurement and delivery of steel casing (CE004)(CE005)(CE006)(CE008)(NCE 018 & 019)	75	1	23-Nov-18 A	18-Apr-19	09-Nov-19	01-Jul-19	19	98.67%	0	-131
Piling Works for Pier W4		21	21	09-Nov-19	09-Oct-19	03-Dec-19	01-Nov-19	115			-27
Testing		21	21	09-Nov-19	09-Oct-19	03-Dec-19	01-Nov-19	115			-27
S2-PW49	Sonic Test, interface core and full core for bored pile -W4	21	21	09-Nov-19	09-Oct-19	03-Dec-19	01-Nov-19	115	0%	0	-27
Piling Works for Pier E2		71	40	13-Oct-19 A	09-Oct-19	18-Dec-19	18-Dec-19	73			0
S2-PW851(	Piling platform installation -E2 (CE006)	4	1	13-Oct-19 A	09-Oct-19	09-Nov-19	12-Oct-19	57	75%	0	-24
Pile E2 -P1		32	8	17-Oct-19 A	14-Oct-19	19-Nov-19	24-Oct-19	58			-22
S2-PW85	Drive Casing & Grab to excavate the soil (40.4m length) -E2-P1	3	1	17-Oct-19 A	14-Oct-19	11-Nov-19	16-Oct-19	57	66.67%	0	-22
S2-PW85	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.2 & air lifting -E2-P1	4	4	12-Nov-19	17-Oct-19	15-Nov-19	21-Oct-19	57	0%	0	-22



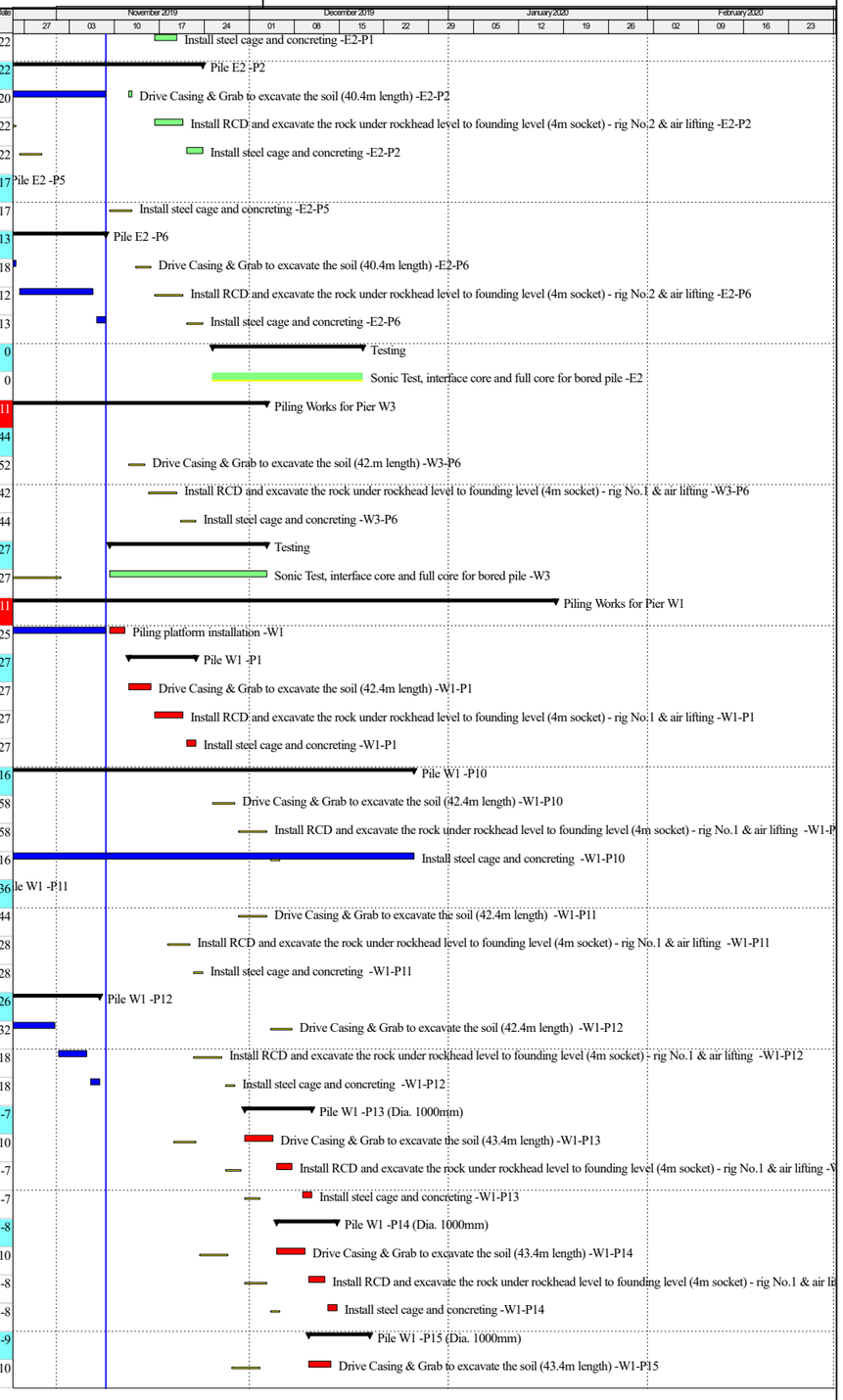
Remaining Level of Effort | Remaining Work | Milestone
Primary Baseline | Critical Remaining Work | Summary
Actual Work | Baseline Milestone

CRBC
Three Month Rolling Programme

Date	Revision	Checked	Approved
08-Nov-19	Monthly updated on 08 Nov 2019		

Contract No. NE/2017/07 Cross Bay Link, Tseng Kwan O - Main Bridge and Associated Works

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Planned Start	Finish	Planned Finish	Total Float	Activity % Complete	TRA	Variance - Finish Date
S2-PW86	Install steel cage and concreting -E2-P1	3	3	16-Nov-19	22-Oct-19	19-Nov-19	24-Oct-19	58	0%	0	-22
Pile E2 -P2		33	11	17-Oct-19 A	17-Oct-19	23-Nov-19	29-Oct-19	57			-22
S2-PW86	Drive Casing & Grab to excavate the soil (40.4m length) -E2-P2	3	1	17-Oct-19 A	17-Oct-19	12-Nov-19	19-Oct-19	60	66.67%	0	-20
S2-PW86	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.2 & air lifting -E2-P2	4	4	16-Nov-19	22-Oct-19	20-Nov-19	25-Oct-19	57	0%	0	-22
S2-PW86	Install steel cage and concreting -E2-P2	3	3	21-Nov-19	26-Oct-19	23-Nov-19	29-Oct-19	57	0%	0	-22
Pile E2 -P5		3	0	22-Oct-19 A	09-Nov-19	23-Oct-19 A	12-Nov-19				17
S2-PW88	Install steel cage and concreting -E2-P5	3	0	22-Oct-19 A	09-Nov-19	23-Oct-19 A	12-Nov-19		100%	0	17
Pile E2 -P6		10	0	17-Oct-19 A	13-Nov-19	08-Nov-19 A	23-Nov-19				13
S2-PW88	Drive Casing & Grab to excavate the soil (40.4m length) -E2-P6	3	0	17-Oct-19 A	13-Nov-19	25-Oct-19 A	15-Nov-19		100%	0	18
S2-PW88	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.2 & air lifting -E2-P6	4	0	26-Oct-19 A	16-Nov-19	06-Nov-19 A	20-Nov-19		100%	0	12
S2-PW89	Install steel cage and concreting -E2-P6	3	0	07-Nov-19 A	21-Nov-19	08-Nov-19 A	23-Nov-19		100%	0	13
Testing		21	21	25-Nov-19	25-Nov-19	18-Dec-19	18-Dec-19	63			0
S2-PW85	Sonic Test, interface core and full core for bored pile -E2	21	21	25-Nov-19	25-Nov-19	18-Dec-19	18-Dec-19	63	0%	0	0
Piling Works for Pier W3		25	25	09-Sep-19 A	09-Oct-19	03-Dec-19	22-Nov-19	105			-11
Pile W3 -P6		10	0	09-Sep-19 A	12-Nov-19	30-Sep-19 A	22-Nov-19				44
S2-PW36	Drive Casing & Grab to excavate the soil (42.m length) -W3-P6	3	0	09-Sep-19 A	12-Nov-19	11-Sep-19 A	14-Nov-19		100%	0	52
S2-PW36	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting -W3-P6	4	0	12-Sep-19 A	15-Nov-19	28-Sep-19 A	19-Nov-19		100%	0	42
S2-PW36	Install steel cage and concreting -W3-P6	3	0	28-Sep-19 A	20-Nov-19	30-Sep-19 A	22-Nov-19		100%	0	44
Testing		21	21	09-Nov-19	09-Oct-19	03-Dec-19	01-Nov-19	90			-27
S2-PW21	Sonic Test, interface core and full core for bored pile -W3	21	21	09-Nov-19	09-Oct-19	03-Dec-19	01-Nov-19	90	0%	0	-27
Piling Works for Pier W1		101	70	11-Sep-19 A	09-Oct-19	17-Jan-20	06-Jan-20	-10			-11
S2-PW206	Piling platform installation -W1	4	2	11-Sep-19 A	09-Oct-19	11-Nov-19	12-Oct-19	-9	50%	0	-25
Pile W1 -P1		10	10	12-Nov-19	11-Oct-19	22-Nov-19	22-Oct-19	4			-27
S2-PW36	Drive Casing & Grab to excavate the soil (42.4m length) -W1-P1	4	4	12-Nov-19	11-Oct-19	15-Nov-19	15-Oct-19	-9	0%	0	-27
S2-PW37	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting -W1-P1	4	4	16-Nov-19	16-Oct-19	20-Nov-19	19-Oct-19	-6	0%	0	-27
S2-PW37	Install steel cage and concreting -W1-P1	2	2	21-Nov-19	21-Oct-19	22-Nov-19	22-Oct-19	4	0%	0	-27
Pile W1 -P10		10	0	16-Sep-19 A	25-Nov-19	26-Dec-19 A	05-Dec-19				-16
S2-PW44	Drive Casing & Grab to excavate the soil (42.4m length) -W1-P10	4	0	16-Sep-19 A	25-Nov-19	19-Sep-19 A	28-Nov-19		100%	0	58
S2-PW44	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting -W1-P10	4	0	20-Sep-19 A	29-Nov-19	24-Sep-19 A	03-Dec-19		100%	0	58
S2-PW44	Install steel cage and concreting -W1-P10	2	0	25-Sep-19 A	04-Dec-19	26-Dec-19 A	05-Dec-19		100%	0	-16
Pile W1 -P11		14	0	16-Sep-19 A	18-Nov-19	22-Oct-19 A	03-Dec-19				36
S2-PW44	Drive Casing & Grab to excavate the soil (42.4m length) -W1-P11	4	0	16-Sep-19 A	29-Nov-19	12-Oct-19 A	03-Dec-19		100%	0	44
S2-PW45	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting -W1-P11	4	0	12-Oct-19 A	18-Nov-19	19-Oct-19 A	21-Nov-19		100%	0	28
S2-PW45	Install steel cage and concreting -W1-P11	2	0	21-Oct-19 A	22-Nov-19	22-Oct-19 A	23-Nov-19		100%	0	28
Pile W1 -P12		14	0	16-Sep-19 A	22-Nov-19	07-Nov-19 A	07-Dec-19				26
S2-PW45	Drive Casing & Grab to excavate the soil (42.4m length) -W1-P12	4	0	16-Sep-19 A	04-Dec-19	31-Oct-19 A	07-Dec-19		100%	0	32
S2-PW46	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting -W1-P12	4	0	01-Nov-19 A	22-Nov-19	05-Nov-19 A	26-Nov-19		100%	0	18
S2-PW46	Install steel cage and concreting -W1-P12	2	0	06-Nov-19 A	27-Nov-19	07-Nov-19 A	28-Nov-19		100%	0	18
Pile W1 -P13 (Dia. 1000mm)		9	9	30-Nov-19	19-Nov-19	10-Dec-19	02-Dec-19	-3			-7
S2-PW46	Drive Casing & Grab to excavate the soil (43.4m length) -W1-P13	4	4	30-Nov-19	19-Nov-19	04-Dec-19	22-Nov-19	-9	0%	0	-10
S2-PW46	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting -W1-P13	3	3	05-Dec-19	27-Nov-19	07-Dec-19	29-Nov-19	-6	0%	0	-7
S2-PW47	Install steel cage and concreting -W1-P13	2	2	09-Dec-19	30-Nov-19	10-Dec-19	02-Dec-19	-3	0%	0	-7
Pile W1 -P14 (Dia. 1000mm)		9	9	05-Dec-19	23-Nov-19	14-Dec-19	05-Dec-19	-5			-8
S2-PW47	Drive Casing & Grab to excavate the soil (43.4m length) -W1-P14	4	4	05-Dec-19	23-Nov-19	09-Dec-19	27-Nov-19	-9	0%	0	-10
S2-PW47	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting -W1-P14	3	3	10-Dec-19	30-Nov-19	12-Dec-19	03-Dec-19	-7	0%	0	-8
S2-PW47	Install steel cage and concreting -W1-P14	2	2	13-Dec-19	04-Dec-19	14-Dec-19	05-Dec-19	-5	0%	0	-8
Pile W1 -P15 (Dia. 1000mm)		9	9	10-Dec-19	28-Nov-19	19-Dec-19	09-Dec-19	-7			-9
S2-PW48	Drive Casing & Grab to excavate the soil (43.4m length) -W1-P15	4	4	10-Dec-19	28-Nov-19	13-Dec-19	02-Dec-19	-9	0%	0	-10



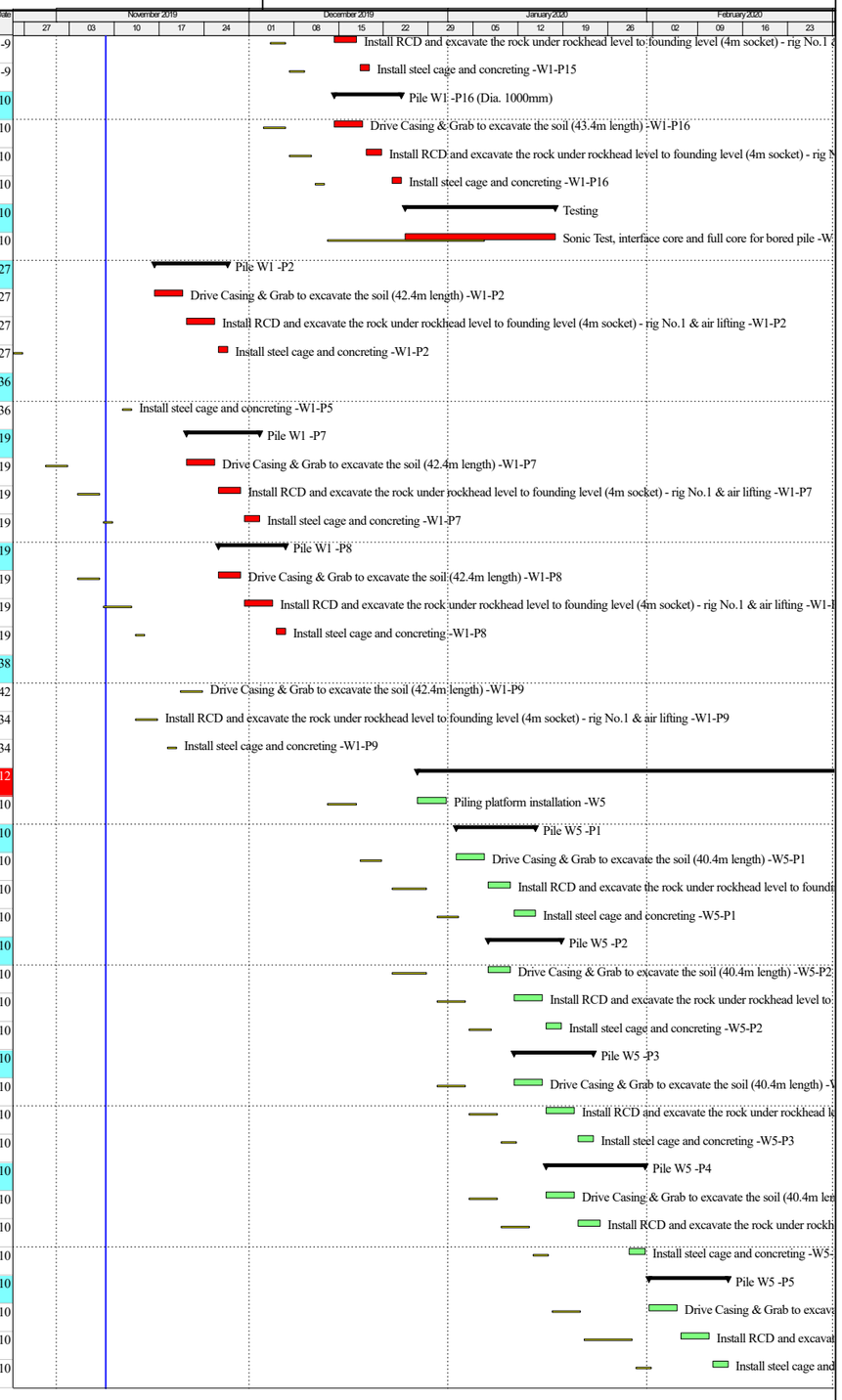
Remaining Level of Effort
Primary Baseline
Actual Work
Remaining Work
Critical Remaining Work
Baseline Milestone
Milestone
Summary

CRBC
Three Month Rolling Programme

Date	Revision	Checked	Approved
08-Nov-19	Monthly updated on 08 Nov 2019		

Contract No. NE/2017/07 Cross Bay Link, Tseng Kwan O - Main Bridge and Associated Works

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Planned Start	Finish	Planned Finish	Total Float	Activity % Complete	TRA	Variance - Finish Date
S2-PW48	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting -W1-P15	3	3	14-Dec-19	04-Dec-19	17-Dec-19	06-Dec-19	-8	0%	0	-9
S2-PW48	Install steel cage and concreting -W1-P15	2	2	18-Dec-19	07-Dec-19	19-Dec-19	09-Dec-19	-7	0%	0	-9
Pile W1 -P16 (Dia. 1000mm)		9	9	14-Dec-19	03-Dec-19	24-Dec-19	12-Dec-19	-9			-10
S2-PW48	Drive Casing & Grab to excavate the soil (43.4m length) -W1-P16	4	4	14-Dec-19	03-Dec-19	18-Dec-19	06-Dec-19	-9	0%	0	-10
S2-PW49	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting -W1-P16	3	3	19-Dec-19	07-Dec-19	21-Dec-19	10-Dec-19	-9	0%	0	-10
S2-PW49	Install steel cage and concreting -W1-P16	2	2	23-Dec-19	11-Dec-19	24-Dec-19	12-Dec-19	-9	0%	0	-10
Testing		21	21	25-Dec-19	13-Dec-19	17-Jan-20	06-Jan-20	-9			-10
S2-PW21	Sonic Test, interface core and full core for bored pile -W1	21	21	25-Dec-19	13-Dec-19	17-Jan-20	06-Jan-20	-9	0%	0	-10
Pile W1 -P2		10	10	16-Nov-19	16-Oct-19	27-Nov-19	26-Oct-19	2			-27
S2-PW37	Drive Casing & Grab to excavate the soil (42.4m length) -W1-P2	4	4	16-Nov-19	16-Oct-19	20-Nov-19	19-Oct-19	-9	0%	0	-27
S2-PW38	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting -W1-P2	4	4	21-Nov-19	21-Oct-19	25-Nov-19	24-Oct-19	-6	0%	0	-27
S2-PW38	Install steel cage and concreting -W1-P2	2	2	26-Nov-19	25-Oct-19	27-Nov-19	26-Oct-19	2	0%	0	-27
Pile W1 -P5		2	0	26-Sep-19 A	11-Nov-19	28-Sep-19 A	12-Nov-19				36
S2-PW40	Install steel cage and concreting -W1-P5	2	0	26-Sep-19 A	11-Nov-19	28-Sep-19 A	12-Nov-19		100%	0	36
Pile W1 -P7		10	10	21-Nov-19	30-Oct-19	02-Dec-19	09-Nov-19	0			-19
S2-PW41	Drive Casing & Grab to excavate the soil (42.4m length) -W1-P7	4	4	21-Nov-19	30-Oct-19	25-Nov-19	02-Nov-19	-9	0%	0	-19
S2-PW42	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting -W1-P7	4	4	26-Nov-19	04-Nov-19	29-Nov-19	07-Nov-19	-6	0%	0	-19
S2-PW42	Install steel cage and concreting -W1-P7	2	2	30-Nov-19	08-Nov-19	02-Dec-19	09-Nov-19	0	0%	0	-19
Pile W1 -P8		10	10	26-Nov-19	04-Nov-19	06-Dec-19	14-Nov-19	-2			-19
S2-PW42	Drive Casing & Grab to excavate the soil (42.4m length) -W1-P8	4	4	26-Nov-19	04-Nov-19	29-Nov-19	07-Nov-19	-9	0%	0	-19
S2-PW42	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting -W1-P8	4	4	30-Nov-19	08-Nov-19	04-Dec-19	12-Nov-19	-6	0%	0	-19
S2-PW43	Install steel cage and concreting -W1-P8	2	2	05-Dec-19	13-Nov-19	06-Dec-19	14-Nov-19	-2	0%	0	-19
Pile W1 -P9		10	0	16-Sep-19 A	13-Nov-19	10-Oct-19 A	23-Nov-19				38
S2-PW43	Drive Casing & Grab to excavate the soil (42.4m length) -W1-P9	4	0	16-Sep-19 A	20-Nov-19	04-Oct-19 A	23-Nov-19		100%	0	42
S2-PW43	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting -W1-P9	4	0	05-Oct-19 A	13-Nov-19	08-Oct-19 A	16-Nov-19		100%	0	34
S2-PW43	Install steel cage and concreting -W1-P9	2	0	09-Oct-19 A	18-Nov-19	10-Oct-19 A	19-Nov-19		100%	0	34
Piling Works for Pier W5		88	88	27-Dec-19	13-Dec-19	23-Mar-20	11-Mar-20	49			-12
S2-PW539	Piling platform installation -W5	4	4	27-Dec-19	13-Dec-19	31-Dec-19	17-Dec-19	38	0%	0	-10
Pile W5 -P1		11	11	02-Jan-20	18-Dec-19	14-Jan-20	02-Jan-20	41			-10
S2-PW54	Drive Casing & Grab to excavate the soil (40.4m length) -W5-P1	4	4	02-Jan-20	18-Dec-19	06-Jan-20	21-Dec-19	38	0%	0	-10
S2-PW54	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting -W5-P1	4	4	07-Jan-20	23-Dec-19	10-Jan-20	28-Dec-19	38	0%	0	-10
S2-PW54	Install steel cage and concreting -W5-P1	3	3	11-Jan-20	30-Dec-19	14-Jan-20	02-Jan-20	41	0%	0	-10
Pile W5 -P2		11	11	07-Jan-20	23-Dec-19	18-Jan-20	07-Jan-20	40			-10
S2-PW55	Drive Casing & Grab to excavate the soil (40.4m length) -W5-P2	4	4	07-Jan-20	23-Dec-19	10-Jan-20	28-Dec-19	38	0%	0	-10
S2-PW55	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting -W5-P2	4	4	11-Jan-20	30-Dec-19	15-Jan-20	03-Jan-20	38	0%	0	-10
S2-PW55	Install steel cage and concreting -W5-P2	3	3	16-Jan-20	04-Jan-20	18-Jan-20	07-Jan-20	40	0%	0	-10
Pile W5 -P3		11	11	11-Jan-20	30-Dec-19	23-Jan-20	11-Jan-20	39			-10
S2-PW55	Drive Casing & Grab to excavate the soil (40.4m length) -W5-P3	4	4	11-Jan-20	30-Dec-19	15-Jan-20	03-Jan-20	38	0%	0	-10
S2-PW55	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting -W5-P3	4	4	16-Jan-20	04-Jan-20	20-Jan-20	08-Jan-20	38	0%	0	-10
S2-PW56	Install steel cage and concreting -W5-P3	3	3	21-Jan-20	09-Jan-20	23-Jan-20	11-Jan-20	39	0%	0	-10
Pile W5 -P4		11	11	16-Jan-20	04-Jan-20	31-Jan-20	16-Jan-20	38			-10
S2-PW56	Drive Casing & Grab to excavate the soil (40.4m length) -W5-P4	4	4	16-Jan-20	04-Jan-20	20-Jan-20	08-Jan-20	38	0%	0	-10
S2-PW56	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting -W5-P4	4	4	21-Jan-20	09-Jan-20	24-Jan-20	13-Jan-20	38	0%	0	-10
S2-PW56	Install steel cage and concreting -W5-P4	3	3	29-Jan-20	14-Jan-20	31-Jan-20	16-Jan-20	38	0%	0	-10
Pile W5 -P5		11	11	01-Feb-20	17-Jan-20	13-Feb-20	01-Feb-20	41			-10
S2-PW56	Drive Casing & Grab to excavate the soil (40.4m length) -W5-P5	4	4	01-Feb-20	17-Jan-20	05-Feb-20	21-Jan-20	38	0%	0	-10
S2-PW57	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting -W5-P5	4	4	06-Feb-20	22-Jan-20	10-Feb-20	29-Jan-20	40	0%	0	-10
S2-PW57	Install steel cage and concreting -W5-P5	3	3	11-Feb-20	30-Jan-20	13-Feb-20	01-Feb-20	41	0%	0	-10



Remaining Level of Effort | Remaining Work | Milestone
Primary Baseline | Critical Remaining Work | Summary
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CRBC
Three Month Rolling Programme

Date	Revision	Checked	Approved
08-Nov-19	Monthly updated on 08 Nov 2019		

Data Date : 08-Nov-19

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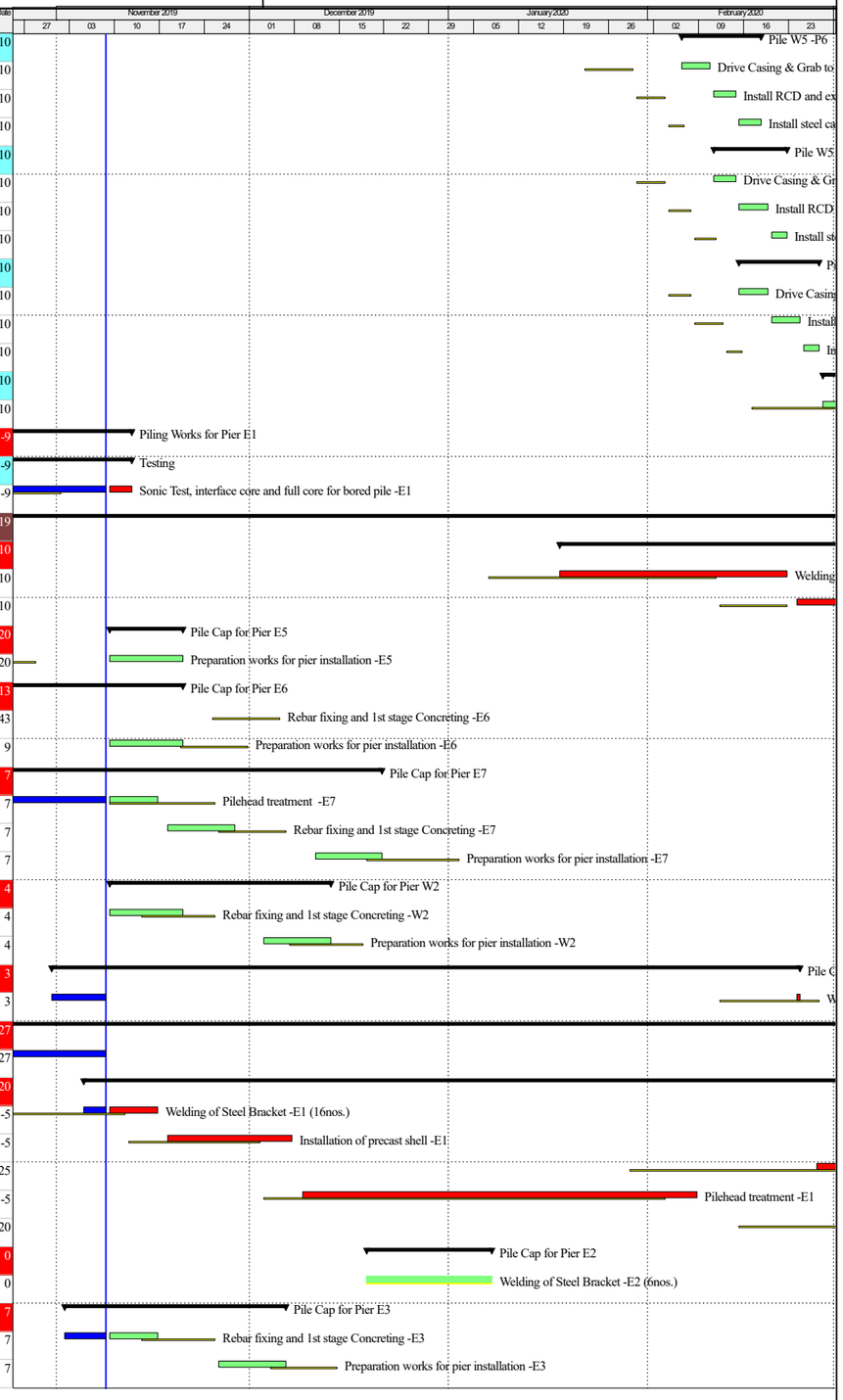
Contract No. NE/2017/07 Cross Bay Link, Tseng Kwan O - Main Bridge and Associated Works

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Planned Start	Finish	Planned Finish	Total Float	Activity % Complete	TRA	Variance - Finish Date
	Pile W5 -P6	11	11	06-Feb-20	22-Jan-20	18-Feb-20	06-Feb-20	40			-10
S2-PW57	Drive Casing & Grab to excavate the soil (40.4m length) -W5-P6	4	4	06-Feb-20	22-Jan-20	10-Feb-20	29-Jan-20	38	0%	0	-10
S2-PW57	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting -W5-P6	4	4	11-Feb-20	30-Jan-20	14-Feb-20	03-Feb-20	40	0%	0	-10
S2-PW57	Install steel cage and concreting -W5-P6	3	3	15-Feb-20	04-Feb-20	18-Feb-20	06-Feb-20	40	0%	0	-10
	Pile W5 -P7	11	11	11-Feb-20	30-Jan-20	22-Feb-20	11-Feb-20	39			-10
S2-PW93	Drive Casing & Grab to excavate the soil (40.4m length) -W5-P7	4	4	11-Feb-20	30-Jan-20	14-Feb-20	03-Feb-20	38	0%	0	-10
S2-PW93	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting -W5-P7	4	4	15-Feb-20	04-Feb-20	19-Feb-20	07-Feb-20	39	0%	0	-10
S2-PW93	Install steel cage and concreting -W5-P7	3	3	20-Feb-20	08-Feb-20	22-Feb-20	11-Feb-20	39	0%	0	-10
	Pile W5 -P8	11	11	15-Feb-20	04-Feb-20	27-Feb-20	15-Feb-20	38			-10
S2-PW94	Drive Casing & Grab to excavate the soil (40.4m length) -W5-P8	4	4	15-Feb-20	04-Feb-20	19-Feb-20	07-Feb-20	38	0%	0	-10
S2-PW94	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting -W5-P8	4	4	20-Feb-20	08-Feb-20	24-Feb-20	12-Feb-20	38	0%	0	-10
S2-PW94	Install steel cage and concreting -W5-P8	3	3	25-Feb-20	13-Feb-20	27-Feb-20	15-Feb-20	38	0%	0	-10
	Testing	21	21	28-Feb-20	17-Feb-20	23-Mar-20	11-Mar-20	42			-10
S2-PW53	Sonic Test, interface core and full core for bored pile -W5	21	21	28-Feb-20	17-Feb-20	23-Mar-20	11-Mar-20	42	0%	0	-10
	Piling Works for Pier E1	21	3	06-Sep-19 A	09-Oct-19	12-Nov-19	01-Nov-19	4			-9
	Testing	21	3	06-Sep-19 A	09-Oct-19	12-Nov-19	01-Nov-19	4			-9
S2-PW74	Sonic Test, interface core and full core for bored pile -E1	21	3	06-Sep-19 A	09-Oct-19	12-Nov-19	01-Nov-19	4	85.71%	0	-9
	Pile Cap	173	128	09-Oct-19 A	10-Oct-19	17-Apr-20	12-May-20	47			19
	Pile Cap for Pier W1	38	38	18-Jan-20	07-Jan-20	05-Mar-20	22-Feb-20	-9			-10
S2-PC2057	Welding of Steel Bracket -W1 (16nos.)	28	28	18-Jan-20	07-Jan-20	22-Feb-20	11-Feb-20	-9	0%	0	-10
S2-PC2060	Installation of precast shell -W1	10	10	24-Feb-20	12-Feb-20	05-Mar-20	22-Feb-20	-9	0%	0	-10
	Pile Cap for Pier E5	10	10	09-Nov-19	17-Oct-19	20-Nov-19	28-Oct-19	131			-20
S2-PC2820	Preparation works for pier installation -E5	10	10	09-Nov-19	17-Oct-19	20-Nov-19	28-Oct-19	131	0%	0	-20
	Pile Cap for Pier E6	23	10	09-Oct-19 A	20-Nov-19	20-Nov-19	05-Dec-19	146			13
S2-PC2640	Rebar fixing and 1st stage Concreting -E6	10	0	09-Oct-19 A	25-Nov-19	16-Oct-19 A	05-Dec-19		100%	0	43
S2-PC2840	Preparation works for pier installation -E6	10	10	09-Nov-19	20-Nov-19	20-Nov-19	30-Nov-19	146	0%	0	9
	Pile Cap for Pier E7	37	37	11-Oct-19 A	09-Nov-19	21-Dec-19	02-Jan-20	129			7
S2-PC2680	Pilehead treatment -E7	14	7	11-Oct-19 A	09-Nov-19	16-Nov-19	25-Nov-19	129	50%	0	7
S2-PC2700	Rebar fixing and 1st stage Concreting -E7	10	10	18-Nov-19	26-Nov-19	28-Nov-19	06-Dec-19	129	0%	0	7
S2-PC2860	Preparation works for pier installation -E7	10	10	11-Dec-19	19-Dec-19	21-Dec-19	02-Jan-20	129	0%	0	7
	Pile Cap for Pier W2	30	30	09-Nov-19	14-Nov-19	13-Dec-19	18-Dec-19	145			4
S2-PC2040	Rebar fixing and 1st stage Concreting -W2	10	10	09-Nov-19	14-Nov-19	20-Nov-19	25-Nov-19	145	0%	0	4
S2-PC2050	Preparation works for pier installation -W2	10	10	03-Dec-19	07-Dec-19	13-Dec-19	18-Dec-19	145	0%	0	4
	Pile Cap for Pier W3	14	1	31-Oct-19 A	12-Feb-20	24-Feb-20	27-Feb-20	20			3
S2-PC2110	Welding of Steel Bracket -W3 (6nos.)	14	1	31-Oct-19 A	12-Feb-20	24-Feb-20	27-Feb-20	20	92.86%	0	3
	Pile Cap for Pier W4	14	10	12-Oct-19 A	24-Apr-20	03-Apr-20	12-May-20	53			27
S2-PC2200	Pilehead treatment -W4	14	10	12-Oct-19 A	24-Apr-20	03-Apr-20	12-May-20	53	28.57%	0	27
	Pile Cap for Pier E1	154	128	05-Nov-19 A	10-Oct-19	17-Apr-20	20-Mar-20	-14			-20
S2-PC2410	Welding of Steel Bracket -E1 (16nos.)	28	7	05-Nov-19 A	10-Oct-19	16-Nov-19	11-Nov-19	1	75%	0	-5
S2-PC2420	Installation of precast shell -E1	18	18	18-Nov-19	12-Nov-19	07-Dec-19	02-Dec-19	1	0%	0	-5
S2-PC2430	Installation of pre-cast side shell (small) and construction of strucutre gap x2 sides -E1	40	40	27-Feb-20	29-Jan-20	17-Apr-20	14-Mar-20	-14	0%	0	-25
S2-PC2440	Pilehead treatment -E1	48	48	09-Dec-19	03-Dec-19	08-Feb-20	03-Feb-20	1	0%	0	-5
S2-PC2880	Rebar fixing and Concreting -E1	30	30	10-Mar-20	15-Feb-20	17-Apr-20	20-Mar-20	-14	0%	0	-20
	Pile Cap for Pier E2	14	14	19-Dec-19	19-Dec-19	07-Jan-20	07-Jan-20	57			0
S2-PC2290	Welding of Steel Bracket -E2 (6nos.)	14	14	19-Dec-19	19-Dec-19	07-Jan-20	07-Jan-20	57	0%	0	0
	Pile Cap for Pier E3	20	24	02-Nov-19 A	14-Nov-19	06-Dec-19	14-Dec-19	132			7
S2-PC2400	Rebar fixing and 1st stage Concreting -E3	10	7	02-Nov-19 A	14-Nov-19	16-Nov-19	25-Nov-19	132	30%	0	7
S2-PC2920	Preparation works for pier installation -E3	10	10	26-Nov-19	04-Dec-19	06-Dec-19	14-Dec-19	132	0%	0	7



Remaining Level of Effort | Remaining Work | Milestone

Primary Baseline | Critical Remaining Work | Summary

Actual Work | Baseline Milestone

CRBC

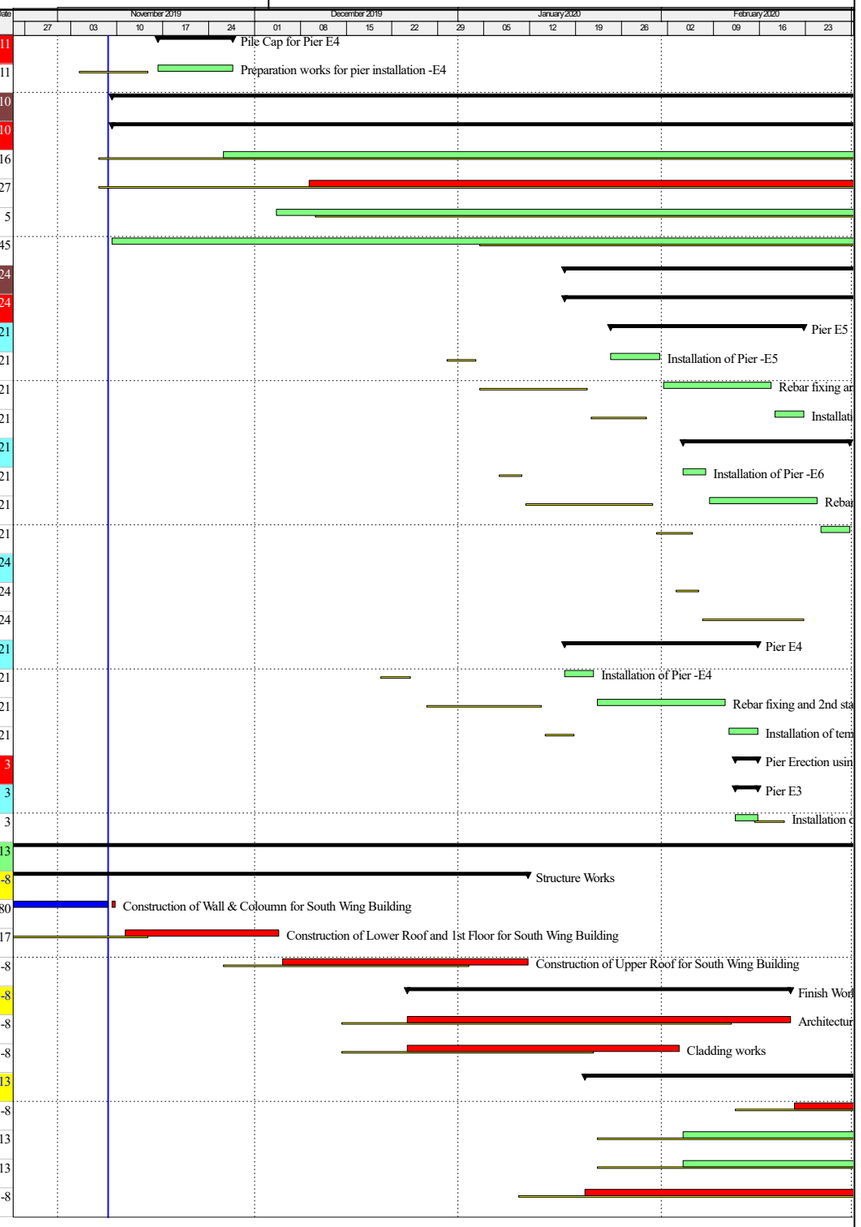
Three Month Rolling Programme

Date	Revision	Checked	Approved
08-Nov-19	Monthly updated on 08 Nov 2019		

Data Date : 08-Nov-19

Contract No. NE/2017/07 Cross Bay Link, Tseng Kwan O - Main Bridge and Associated Works

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Planned Start	Finish	Planned Finish	Total Float	Activity % Complete	TRA	Variance - Finish Date
Pile Cap for Pier E4		10	10	16-Nov-19	04-Nov-19	27-Nov-19	14-Nov-19	119			-11
S2-PC2800	Preparation works for pier installation -E4	10	10	16-Nov-19	04-Nov-19	27-Nov-19	14-Nov-19	119	0%	0	-11
Associated, E&M Works for CBL Main Bridge and Marine Viaduct		235	235	09-Nov-19	07-Nov-19	25-Aug-20	13-Aug-20	280			-10
Procurement and Delivery of Associated, E&M Works		235	235	09-Nov-19	07-Nov-19	25-Aug-20	13-Aug-20	280			-10
S2-AW200	Procurement and Delivery Under Bridge mobile gantry	180	180	26-Nov-19	07-Nov-19	08-Jul-20	17-Jun-20	37	0%	0	-16
S2-AW200	Procurement and delivery of arch inspection cradle	210	210	09-Dec-19	07-Nov-19	25-Aug-20	24-Jul-20	-18	0%	0	-27
S2-AW201	Procurement and delivery of of TMD	120	120	04-Dec-19	10-Dec-19	05-May-20	11-May-20	374	0%	0	5
S2-AW201	Procurement and delivery of dehumification system	180	180	09-Nov-19	04-Jan-20	19-Jun-20	13-Aug-20	326	0%	0	45
Pier (Precast Pier under CSD)		53	53	17-Jan-20	20-Dec-19	21-Mar-20	22-Feb-20	75			-24
Pier Erection using Crane Barge <1000T		53	53	17-Jan-20	20-Dec-19	21-Mar-20	22-Feb-20	75			-24
Pier E5		23	23	24-Jan-20	30-Dec-19	22-Feb-20	29-Jan-20	79			-21
S2-PR36	Installation of Pier -E5	4	4	24-Jan-20	30-Dec-19	31-Jan-20	03-Jan-20	79	0%	0	-21
S2-PR36	Rebar fixing and 2nd stage Concreting for connection between pier and pile cap -E5	14	14	01-Feb-20	04-Jan-20	17-Feb-20	20-Jan-20	79	0%	0	-21
S2-PR36	Installation of temp. bearing/jacking system -E5	5	5	18-Feb-20	21-Jan-20	22-Feb-20	29-Jan-20	79	0%	0	-21
Pier E6		23	23	04-Feb-20	07-Jan-20	29-Feb-20	05-Feb-20	88			-21
S2-PR36	Installation of Pier -E6	4	4	04-Feb-20	07-Jan-20	07-Feb-20	10-Jan-20	88	0%	0	-21
S2-PR36	Rebar fixing and 2nd stage Concreting for connection between pier and pile cap -E6	14	14	08-Feb-20	11-Jan-20	24-Feb-20	30-Jan-20	88	0%	0	-21
S2-PR37	Installation of temp. bearing/jacking system -E6	5	5	25-Feb-20	31-Jan-20	29-Feb-20	05-Feb-20	88	0%	0	-21
Pier E7		18	18	02-Mar-20	03-Feb-20	21-Mar-20	22-Feb-20	75			-24
S2-PR37	Installation of Pier -E7	4	4	02-Mar-20	03-Feb-20	05-Mar-20	06-Feb-20	75	0%	0	-24
S2-PR37	Rebar fixing and 2nd stage Concreting for connection between pier and pile cap -E7	14	14	06-Mar-20	07-Feb-20	21-Mar-20	22-Feb-20	75	0%	0	-24
Pier E4		23	23	17-Jan-20	20-Dec-19	15-Feb-20	18-Jan-20	85			-21
S2-PR35	Installation of Pier -E4	4	4	17-Jan-20	20-Dec-19	21-Jan-20	24-Dec-19	79	0%	0	-21
S2-PR35	Rebar fixing and 2nd stage Concreting for connection between pier and pile cap -E4	14	14	22-Jan-20	27-Dec-19	10-Feb-20	13-Jan-20	85	0%	0	-21
S2-PR35	Installation of tem. bearing/ Jacking System -E4	5	5	11-Feb-20	14-Jan-20	15-Feb-20	18-Jan-20	85	0%	0	-21
Pier Erection using Crane Barge >1000T		4	4	12-Feb-20	15-Feb-20	15-Feb-20	19-Feb-20	81			3
Pier E3		4	4	12-Feb-20	15-Feb-20	15-Feb-20	19-Feb-20	81			3
S2-PR34	Installation of Pier -E3	4	4	12-Feb-20	15-Feb-20	15-Feb-20	19-Feb-20	81	0%	0	3
Section 5 of the Works-All Works within Portion V (CBL E&M Plantroom)		387	267	03-Sep-19 A	12-Jul-19	01-Aug-20	19-Jul-20	144			-13
Structure Works		152	52	03-Sep-19 A	12-Jul-19	11-Jan-20	02-Jan-20	-11			-8
S5-PR2061	Construction of Wall & Coloumn for South Wing Building	21	1	03-Sep-19 A	12-Jul-19	09-Nov-19	05-Aug-19	-11	95.24%	0	-80
S5-PR2062	Construction of Lower Roof and 1st Floor for South Wing Building	21	21	11-Nov-19	22-Oct-19	04-Dec-19	14-Nov-19	-11	0%	0	-17
S5-PR2063	Construction of Upper Roof for South Wing Building	30	30	05-Dec-19	26-Nov-19	11-Jan-20	02-Jan-20	-11	0%	0	-8
Finish Works		45	45	24-Dec-19	14-Dec-19	20-Feb-20	11-Feb-20	-11			-8
S5-PR2080	Architectural works	45	45	24-Dec-19	14-Dec-19	20-Feb-20	11-Feb-20	-11	0%	0	-8
S5-PR2090	Cladding works	30	30	24-Dec-19	14-Dec-19	03-Feb-20	21-Jan-20	-11	0%	0	-8
E&M and Remaining Works		195	195	20-Jan-20	10-Jan-20	01-Aug-20	19-Jul-20	144			-13
S5-PR2120	External works	90	90	21-Feb-20	12-Feb-20	11-Jun-20	02-Jun-20	-11	0%	0	-8
S5-PR2140	Submission of WWO46 and WWW0132 to WSD	180	180	04-Feb-20	22-Jan-20	01-Aug-20	19-Jul-20	67	0%	0	-13
S5-PR2150	Submission of FSI/314 to FSD	180	180	04-Feb-20	22-Jan-20	01-Aug-20	19-Jul-20	144	0%	0	-13
S5-PR2160	Building services for E&M plantroom	120	120	20-Jan-20	10-Jan-20	17-Jun-20	08-Jun-20	-11	0%	0	-8



Remaining Level of Effort | Remaining Work | Milestone
Primary Baseline | Critical Remaining Work | Summary
Actual Work | Baseline Milestone

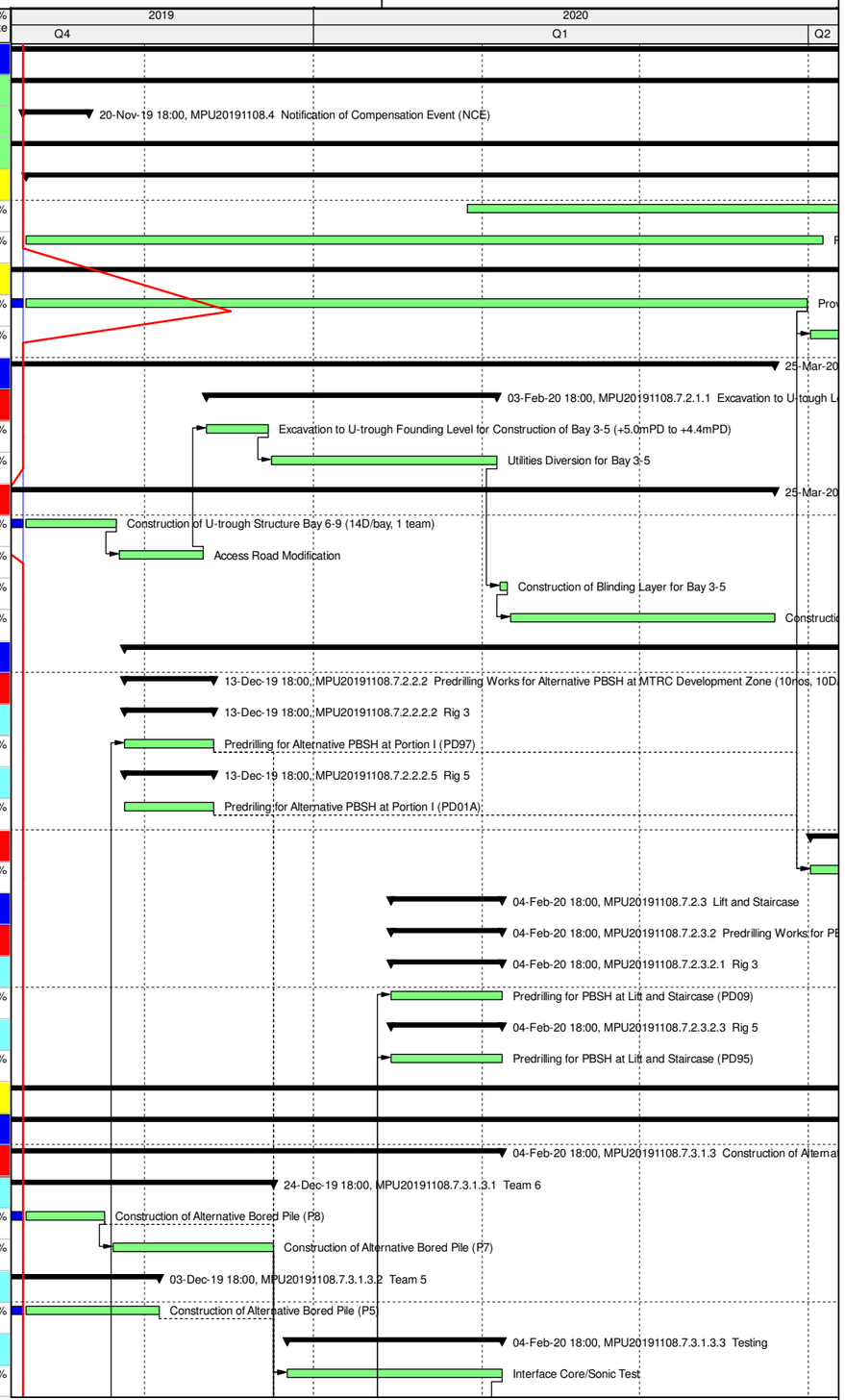
CRBC

Three Month Rolling Programme

Date	Revision	Checked	Approved
08-Nov-19	Monthly updated on 08 Nov 2019		

Contract 2

Activity ID	Activity Name	Original Duration	Actual Duration	Remaining Duration	Calendar	Start	Finish	Late Start	Late Finish	Total Float	TRA	Activity % Complete
MPU20191108	NE/2017/08 Programme Update (Nov 2019)	1161.0	311.0	866.0		02-Jan-19 08:00 A	23-Mar-22 18:00	02-Nov-19 13:00	30-Mar-23 18:00	372.0		
MPU20191108.2	Design and Method Statement, Material Submissions	412.0	299.0	167.0	NE/2017/08(7days)	14-Jan-19 08:00 A	23-Apr-20 18:00	11-Nov-19 18:00	13-Apr-21 13:00	354.5		
MPU20191108.4	Notification of Compensation Event (NCE)	12.0	0.0	12.0	NE/2017/08(7days)	08-Nov-19 18:00	20-Nov-19 18:00	30-Mar-23 18:00	30-Mar-23 18:00	1226.0		
MPU20191108.7	Construction Works	450.0	130.0	358.0		02-Jul-19 08:00 A	31-Oct-20 18:00	02-Nov-19 13:00	30-Mar-23 18:00	880.0		
MPU20191108.7.1	Preliminaries	183.0	0.0	183.0	NE/2017/08(6days)	09-Nov-19 08:00	23-Jun-20 18:00	27-Dec-19 08:00	20-Apr-21 18:00	244.0		
PREL1150	Procurement, factory acceptance test and delivery for lift and assoicated	120.0	0.0	120.0	NE/2017/08(6days)	29-Jan-20 08:00*	23-Jun-20 18:00	21-Nov-20 08:00	20-Apr-21 18:00	244.0	0	0%
PREL1250	Procurement, Factory Accpetance Test and Delivery of Bearing	120.0	0.0	120.0	NE/2017/08(6days)	09-Nov-19 08:00	03-Apr-20 18:00	27-Dec-19 08:00	26-May-20 18:00	39.0	0	0%
MPU20191108.7.2	Construction Works of Portion I	450.0	130.0	358.0		02-Jul-19 08:00 A	31-Oct-20 18:00	09-Jan-20 08:00	11-Feb-21 13:00	102.5		
PORI.A1000	Provide Access to MTRC P10 at Elevated Cycle Track Area	274.0	130.0	144.0	NE/2017/08(7days)	02-Jul-19 08:00 A	31-Mar-20 18:00	09-Jan-20 08:00	31-May-20 18:00	61.0	0	47.45%
PORI.A1010	Provide Access to MTRC P10 at U-trough Section	214.0	0.0	214.0	NE/2017/08(7days)	01-Apr-20 08:00	31-Oct-20 18:00	12-Jul-20 13:00	11-Feb-21 13:00	102.5		0%
MPU20191108.7.2.1	Cycle Track - U-trough	162.0	50.0	112.0	NE/2017/08(6days)	09-Sep-19 08:00 A	25-Mar-20 18:00	26-Sep-20 13:00	11-Feb-21 13:00	262.5		
MPU20191108.7.2.1.1	Excavation to U-tough Level(+5.0mPD to +4.4mPD) (700m3)	40.0	0.0	40.0	NE/2017/08(6days)	12-Dec-19 08:00	03-Feb-20 18:00	02-Nov-20 13:00	18-Dec-20 13:00	262.5		
PORI.UT.EX1030	Excavation to U-trough Founding Level for Construction of Bay 3-5 (+5.0mPD to +4.4mPD)	10.0	0.0	10.0	NE/2017/08(6days)	12-Dec-19 08:00	23-Dec-19 18:00	02-Nov-20 13:00	13-Nov-20 13:00	262.5	0	0%
PORI.UT.EX1040	Utilities Diversion for Bay 3-5	30.0	0.0	30.0	NE/2017/08(6days)	24-Dec-19 08:00	03-Feb-20 18:00	13-Nov-20 13:00	18-Dec-20 13:00	262.5	0	0%
MPU20191108.7.2.1.2	Construction of U-trough Structure (9 Bays, 27D/Bay, 1 Team)	162.0	50.0	112.0	NE/2017/08(6days)	09-Sep-19 08:00 A	25-Mar-20 18:00	26-Sep-20 13:00	11-Feb-21 13:00	262.5		
PORI.UT.ST1010	Construction of U-trough Structure Bay 6-9 (14D/bay, 1 team)	56.0	50.0	14.0	NE/2017/08(6days)	09-Sep-19 08:00 A	25-Nov-19 18:00	26-Sep-20 13:00	15-Oct-20 13:00	262.5	0	75%
PORI.UT.ST1020	Access Road Modification	14.0	0.0	14.0	NE/2017/08(6days)	26-Nov-19 08:00	11-Dec-19 18:00	15-Oct-20 13:00	02-Nov-20 13:00	262.5	0	0%
PORI.UT.ST1030	Construction of Blinding Layer for Bay 3-5	2.0	0.0	2.0	NE/2017/08(6days)	04-Feb-20 08:00	05-Feb-20 18:00	18-Dec-20 13:00	21-Dec-20 13:00	262.5	0	0%
PORI.UT.ST1040	Construction of U-trough Structure Bay 3-5 (14D/bay, 1 team)	42.0	0.0	42.0	NE/2017/08(6days)	06-Feb-20 08:00	25-Mar-20 18:00	21-Dec-20 13:00	11-Feb-21 13:00	262.5	0	0%
MPU20191108.7.2.2	Elevated Cycle Track	107.0	0.0	107.0	NE/2017/08(6days)	27-Nov-19 08:00	07-Apr-20 18:00	24-Apr-20 13:00	05-Jun-20 18:00	46.0		
MPU20191108.7.2.2.2	Predrilling Works for Alternative PBSH at MTRC Development Zone (10nos, 10D/pile+5	15.0	0.0	15.0	NE/2017/08(6days)	27-Nov-19 08:00	13-Dec-19 18:00	24-Apr-20 13:00	14-May-20 13:00	118.5		
MPU20191108.7.2.2.2.2	Rig 3	15.0	0.0	15.0	NE/2017/08(6days)	27-Nov-19 08:00	13-Dec-19 18:00	24-Apr-20 13:00	14-May-20 13:00	118.5		
PORI.ED.PD1070	Predrilling for Alternative PBSH at Portion I (PD97)	15.0	0.0	15.0	NE/2017/08(6days)	27-Nov-19 08:00	13-Dec-19 18:00	24-Apr-20 13:00	14-May-20 13:00	118.5	5	0%
MPU20191108.7.2.2.2.5	Rig 5	15.0	0.0	15.0	NE/2017/08(6days)	27-Nov-19 08:00	13-Dec-19 18:00	24-Apr-20 13:00	14-May-20 13:00	118.5		
PORI.ED.PD1120	Predrilling for Alternative PBSH at Portion I (PD01A)	15.0	0.0	15.0	NE/2017/08(6days)	27-Nov-19 08:00	13-Dec-19 18:00	24-Apr-20 13:00	14-May-20 13:00	118.5	5	0%
MPU20191108.7.2.2.1	Mobilization of Piling Rigs	5.0	0.0	5.0	NE/2017/08(6days)	01-Apr-20 08:00	07-Apr-20 18:00	01-Jun-20 08:00	05-Jun-20 18:00	46.0		
PORI.ED.EX1040	Mobilization of Piling Rigs for PBSH	5.0	0.0	5.0	NE/2017/08(6days)	01-Apr-20 08:00	07-Apr-20 18:00	01-Jun-20 08:00	05-Jun-20 18:00	46.0	0	0%
MPU20191108.7.2.3	Lift and Staircase	15.0	0.0	15.0	NE/2017/08(6days)	15-Jan-20 08:00	04-Feb-20 18:00	27-Oct-20 08:00	12-Nov-20 18:00	231.0		
MPU20191108.7.2.3.2	Predrilling Works for PBSH (5nos, 10D/pile+5D TRA, 1-5rigs)	15.0	0.0	15.0	NE/2017/08(6days)	15-Jan-20 08:00	04-Feb-20 18:00	27-Oct-20 08:00	12-Nov-20 18:00	231.0		
MPU20191108.7.2.3.2.1	Rig 3	15.0	0.0	15.0	NE/2017/08(6days)	15-Jan-20 08:00	04-Feb-20 18:00	27-Oct-20 08:00	12-Nov-20 18:00	231.0		
PORI.LS.PD1010	Predrilling for PBSH at Lift and Staircase (PD09)	15.0	0.0	15.0	NE/2017/08(6days)	15-Jan-20 08:00	04-Feb-20 18:00	27-Oct-20 08:00	12-Nov-20 18:00	231.0	5	0%
MPU20191108.7.2.3.2.3	Rig 5	15.0	0.0	15.0	NE/2017/08(6days)	15-Jan-20 08:00	04-Feb-20 18:00	27-Oct-20 08:00	12-Nov-20 18:00	231.0		
PORI.LS.PD1040	Predrilling for PBSH at Lift and Staircase (PD95)	15.0	0.0	15.0	NE/2017/08(6days)	15-Jan-20 08:00	04-Feb-20 18:00	27-Oct-20 08:00	12-Nov-20 18:00	231.0	5	0%
MPU20191108.7.3	Construction Works of Portion II	137.0	13.0	124.0	NE/2017/08(6days)	25-Oct-19 08:00 A	09-Apr-20 18:00	23-Dec-19 08:00	18-Aug-20 13:00	104.5		
MPU20191108.7.3.1	Abutment 2A	135.0	13.0	122.0	NE/2017/08(6days)	25-Oct-19 08:00 A	07-Apr-20 18:00	23-Dec-19 08:00	26-May-20 18:00	37.0		
MPU20191108.7.3.1.3	Construction of Alternative Bored Pile (8nos, 21D/pile, 1-2 teams)	82.0	13.0	69.0	NE/2017/08(6days)	25-Oct-19 08:00 A	04-Feb-20 18:00	23-Dec-19 08:00	18-Mar-20 18:00	37.0		
MPU20191108.7.3.1.3.1	Team 6	52.0	13.0	39.0	NE/2017/08(6days)	25-Oct-19 08:00 A	24-Dec-19 18:00	23-Dec-19 08:00	12-Feb-20 18:00	37.0		
PORII.AB.BP1060	Construction of Alternative Bored Pile (P8)	26.0	13.0	13.0	NE/2017/08(6days)	25-Oct-19 08:00 A	23-Nov-19 18:00	23-Dec-19 08:00	09-Jan-20 18:00	37.0	5	50%
PORII.AB.BP1080	Construction of Alternative Bored Pile (P7)	26.0	0.0	26.0	NE/2017/08(6days)	25-Nov-19 08:00	24-Dec-19 18:00	10-Jan-20 08:00	12-Feb-20 18:00	37.0	5	0%
MPU20191108.7.3.1.3.2	Team 5	26.0	5.0	21.0	NE/2017/08(6days)	04-Nov-19 08:00 A	03-Dec-19 18:00	16-Jan-20 08:00	12-Feb-20 18:00	55.0		
PORII.AB.BP111 0	Construction of Alternative Bored Pile (P5)	26.0	5.0	21.0	NE/2017/08(6days)	04-Nov-19 08:00 A	03-Dec-19 18:00	16-Jan-20 08:00	12-Feb-20 18:00	55.0	5	19.23%
MPU20191108.7.3.1.3.3	Testing	30.0	0.0	30.0	NE/2017/08(6days)	27-Dec-19 08:00	04-Feb-20 18:00	13-Feb-20 08:00	18-Mar-20 18:00	37.0		
PORII.AB.BP1030	Interface Core/Sonic Test	30.0	0.0	30.0	NE/2017/08(6days)	27-Dec-19 08:00	04-Feb-20 18:00	13-Feb-20 08:00	18-Mar-20 18:00	37.0	0	0%



Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
summary

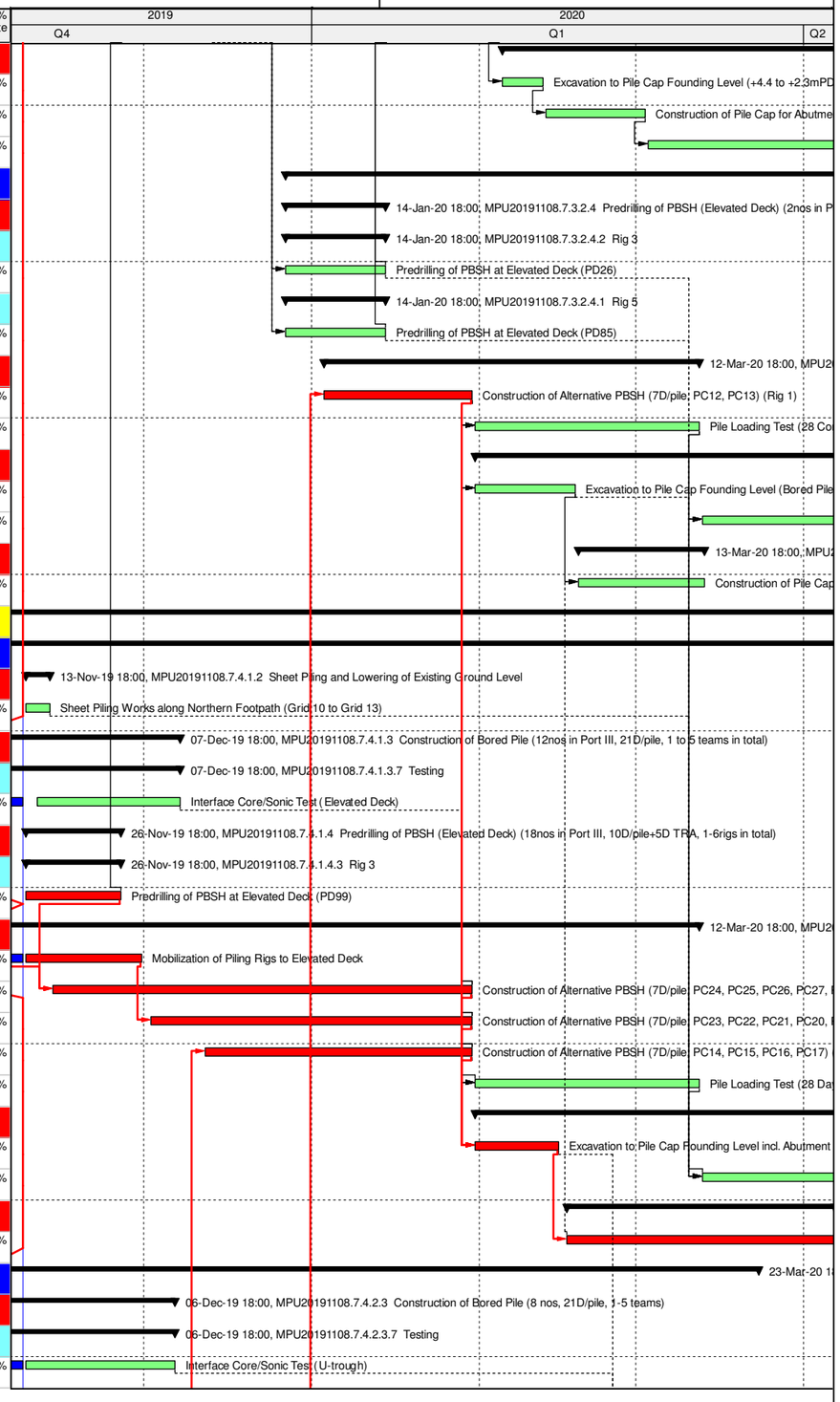
CEDD 土木工程拓展署 Civil Engineering and Development Department

Contract No.: NE/2017/08
Cross Bay Link, Tseung Kwan O
Road D9 and Associated Works

Build King

Date	Revision	Checked	Approved
08-Nov-19	3 Month Rolling Programme (Dec to Feb)	TT	StL

Activity ID	Activity Name	Original Duration	Actual Duration	Remaining Duration	Calendar	Start	Finish	Late Start	Late Finish	Total Float	TRA	Activity % Complete
MPU20191108.7.3.1.4	Construction of Abutment Structure	53.0	0.0	53.0	NE/2017/08(6days)	05-Feb-20 08:00	07-Apr-20 18:00	19-Mar-20 08:00	26-May-20 18:00	37.0		
PORII.AB.ST1010	Excavation to Pile Cap Founding Level (+4.4 to +2.3mPD) (500m3)	7.0	0.0	7.0	NE/2017/08(6days)	05-Feb-20 08:00	12-Feb-20 18:00	19-Mar-20 08:00	26-Mar-20 18:00	37.0	0	0%
PORII.AB.ST1020	Construction of Pile Cap for Abutment Structure	16.0	0.0	16.0	NE/2017/08(6days)	13-Feb-20 08:00	02-Mar-20 18:00	27-Mar-20 08:00	18-Apr-20 18:00	37.0	0	0%
PORII.AB.ST1030	Construction of Abutment Structure	30.0	0.0	30.0	NE/2017/08(6days)	03-Mar-20 08:00	07-Apr-20 18:00	20-Apr-20 08:00	26-May-20 18:00	37.0	0	0%
MPU20191108.7.3.2	Elevated Deck	85.0	0.0	85.0	NE/2017/08(6days)	27-Dec-19 08:00	09-Apr-20 18:00	24-Dec-19 13:00	18-Aug-20 13:00	104.5		
MPU20191108.7.3.2.4	Predrilling of PBSH (Elevated Deck) (2nos in Port II, 10D/pile+5D TRA, 2rigs in total)	15.0	0.0	15.0	NE/2017/08(6days)	27-Dec-19 08:00	14-Jan-20 18:00	14-May-20 13:00	01-Jun-20 13:00	109.5		
MPU20191108.7.3.2.4.2	Rig 3	15.0	0.0	15.0	NE/2017/08(6days)	27-Dec-19 08:00	14-Jan-20 18:00	14-May-20 13:00	01-Jun-20 13:00	109.5		
PORII.ED.PD.HP1010	Predrilling of PBSH at Elevated Deck (PD26)	15.0	0.0	15.0	NE/2017/08(6days)	27-Dec-19 08:00	14-Jan-20 18:00	14-May-20 13:00	01-Jun-20 13:00	109.5	5	0%
MPU20191108.7.3.2.4.1	Rig 5	15.0	0.0	15.0	NE/2017/08(6days)	27-Dec-19 08:00	14-Jan-20 18:00	14-May-20 13:00	01-Jun-20 13:00	109.5		
PORII.ED.PD.HP1020	Predrilling of PBSH at Elevated Deck (PD85)	15.0	0.0	15.0	NE/2017/08(6days)	27-Dec-19 08:00	14-Jan-20 18:00	14-May-20 13:00	01-Jun-20 13:00	109.5	5	0%
MPU20191108.7.3.2.5	Construction of Alternative PBSH (5nos in Port II, 7D/pile, 1 to 5rigs)	57.0	0.0	57.0	NE/2017/08(6days)	03-Jan-20 08:00	12-Mar-20 18:00	24-Dec-19 13:00	01-Jun-20 13:00	62.5		
PORII.ED.HP1010	Construction of Alternative PBSH (7D/pile, PC12, PC13) (Rig 1)	21.0	0.0	21.0	NE/2017/08(6days)	03-Jan-20 08:00	30-Jan-20 18:00	24-Dec-19 13:00	21-Jan-20 13:00	-5.5	0	0%
PORII.ED.HP1060	Pile Loading Test (28 Concrete Cube + 14D Setup)	36.0	0.0	36.0	NE/2017/08(6days)	31-Jan-20 08:00	12-Mar-20 18:00	17-Apr-20 13:00	01-Jun-20 13:00	62.5	0	0%
MPU20191108.7.3.2.6	Excavation to Pile Cap Level (+4.4mPD to +2.3mPD)	59.0	0.0	59.0	NE/2017/08(6days)	31-Jan-20 08:00	09-Apr-20 18:00	15-Feb-20 13:00	18-Aug-20 13:00	104.5		
PORII.ED.1060	Excavation to Pile Cap Founding Level (Bored Pile Area) (+4.4mPD to +2.3mPD)	16.0	0.0	16.0	NE/2017/08(6days)	31-Jan-20 08:00	18-Feb-20 18:00	15-Feb-20 13:00	05-Mar-20 13:00	13.5	0	0%
PORII.ED.1070	Excavation to Pile Cap Founding Level (PBSH Area) (+4.4mPD to +2.3mPD)	23.0	0.0	23.0	NE/2017/08(6days)	13-Mar-20 08:00	09-Apr-20 18:00	22-Jul-20 13:00	18-Aug-20 13:00	104.5	0	0%
MPU20191108.7.3.2.11	Construction of Pile Cap at Bored Pile Area(Elevated Deck)(cap+ cantilever beam, 21	21.0	0.0	21.0	NE/2017/08(6days)	19-Feb-20 08:00	13-Mar-20 18:00	05-Mar-20 13:00	30-Mar-20 13:00	13.5		
PORII.ED.PCBP1000	Construction of Pile Cap at Bored Pile Area (1 PC+cantilever beam, 21D/cap, 1team)	21.0	0.0	21.0	NE/2017/08(6days)	19-Feb-20 08:00	13-Mar-20 18:00	05-Mar-20 13:00	30-Mar-20 13:00	13.5	0	0%
MPU20191108.7.4	Construction Works of Portion III	233.0	80.0	153.0		21-Aug-19 08:00 A	09-Apr-20 18:00	02-Nov-19 13:00	30-Nov-20 13:00	234.5		
MPU20191108.7.4.1	Construction of Elevated Deck and Abutment 2B	190.0	66.0	124.0	NE/2017/08(6days)	21-Aug-19 08:00 A	09-Apr-20 18:00	02-Nov-19 13:00	29-Jun-20 13:00	62.5		
MPU20191108.7.4.1.2	Sheet Piling and Lowering of Existing Ground Level	4.0	0.0	4.0	NE/2017/08(6days)	09-Nov-19 08:00	13-Nov-19 18:00	27-May-20 13:00	01-Jun-20 13:00	159.5		
PORIII.ED.EX1060	Sheet Piling Works along Northern Footpath (Grid 10 to Grid 13)	4.0	0.0	4.0	NE/2017/08(6days)	09-Nov-19 08:00	13-Nov-19 18:00	27-May-20 13:00	01-Jun-20 13:00	159.5	0	0%
MPU20191108.7.4.1.3	Construction of Bored Pile (12nos in Port III, 21D/pile, 1 to 5 teams in total)	42.0	66.0	24.0	NE/2017/08(6days)	21-Aug-19 08:00 A	07-Dec-19 18:00	20-Dec-19 13:00	21-Jan-20 13:00	34.5		
MPU20191108.7.4.1.3.7	Testing	42.0	66.0	24.0	NE/2017/08(6days)	21-Aug-19 08:00 A	07-Dec-19 18:00	20-Dec-19 13:00	21-Jan-20 13:00	34.5		
PORIII.ED.BP1200	Interface Core/Sonic Test (Elevated Deck)	42.0	66.0	24.0	NE/2017/08(6days)	21-Aug-19 08:00 A	07-Dec-19 18:00	20-Dec-19 13:00	21-Jan-20 13:00	34.5	0	42.86%
MPU20191108.7.4.1.4	Predrilling of PBSH (Elevated Deck) (18nos in Port III, 10D/pile+5D TRA, 1-6rigs in total)	15.0	0.0	15.0	NE/2017/08(6days)	09-Nov-19 08:00	26-Nov-19 18:00	02-Nov-19 13:00	20-Nov-19 13:00	-5.5		
MPU20191108.7.4.1.4.3	Rig 3	15.0	0.0	15.0	NE/2017/08(6days)	09-Nov-19 08:00	26-Nov-19 18:00	02-Nov-19 13:00	20-Nov-19 13:00	-5.5		
PORIII.ED.PD.HP1235	Predrilling of PBSH at Elevated Deck (PD99)	15.0	0.0	15.0	NE/2017/08(6days)	09-Nov-19 08:00	26-Nov-19 18:00	02-Nov-19 13:00	20-Nov-19 13:00	-5.5	5	0%
MPU20191108.7.4.1.5	Construction of Alternative PBSH (45nos in Port III, 7D/pile, 1-5rigs in total)	115.0	14.0	101.0	NE/2017/08(6days)	24-Oct-19 08:00 A	12-Mar-20 18:00	02-Nov-19 13:00	01-Jun-20 13:00	62.5		
PORIII.ED.HP1000	Mobilization of Piling Rigs to Elevated Deck	6.0	14.0	19.0	NE/2017/08(6days)	24-Oct-19 08:00 A	30-Nov-19 18:00	02-Nov-19 13:00	25-Nov-19 13:00	-5.5	0	0%
PORIII.ED.HP1010	Construction of Alternative PBSH (7D/pile, PC24, PC25, PC26, PC27, PC28, PC29, PC30, PC31) (Rig 3)	61.0	0.0	61.0	NE/2017/08(6days)	14-Nov-19 08:00	30-Jan-20 18:00	07-Nov-19 13:00	21-Jan-20 13:00	-5.5	0	0%
PORIII.ED.HP1020	Construction of Alternative PBSH (7D/pile, PC23, PC22, PC21, PC20, PC19, PC18) (Rig 4)	46.0	0.0	46.0	NE/2017/08(6days)	02-Dec-19 08:00	30-Jan-20 18:00	25-Nov-19 13:00	21-Jan-20 13:00	-5.5		0%
PORIII.ED.HP1030	Construction of Alternative PBSH (7D/pile, PC14, PC15, PC16, PC17) (Rig 2)	37.0	0.0	37.0	NE/2017/08(6days)	12-Dec-19 08:00	30-Jan-20 18:00	05-Dec-19 13:00	21-Jan-20 13:00	-5.5		0%
PORIII.ED.HP1470	Pile Loading Test (28 Days Concrete Cube + 14D Setup)	36.0	0.0	36.0	NE/2017/08(6days)	31-Jan-20 08:00	12-Mar-20 18:00	17-Apr-20 13:00	01-Jun-20 13:00	62.5	0	0%
MPU20191108.7.4.1.6	Excavation to Pile Cap Level (+4.4mPD to +2.3mPD)	59.0	0.0	59.0	NE/2017/08(6days)	31-Jan-20 08:00	09-Apr-20 18:00	21-Jan-20 13:00	29-Jun-20 13:00	62.5		
PORIII.ED1060	Excavation to Pile Cap Founding Level incl. Abutment 2B (+4.4mPD to +2.3mPD) (Bored Pile Area)	14.0	0.0	14.0	NE/2017/08(6days)	31-Jan-20 08:00	15-Feb-20 18:00	21-Jan-20 13:00	10-Feb-20 13:00	-5.5	0	0%
PORIII.ED1070	Excavation to Pile Cap Founding Level incl. Abutment 2B (+4.4mPD to +2.3mPD) (PBSH Area)	23.0	0.0	23.0	NE/2017/08(6days)	13-Mar-20 08:00	09-Apr-20 18:00	01-Jun-20 13:00	29-Jun-20 13:00	62.5	0	0%
MPU20191108.7.4.1.11	Construction of Pile Cap at Bored Pile Area(Elevated Deck)(9nos cap+cantilever bean	42.0	0.0	42.0	NE/2017/08(6days)	17-Feb-20 08:00	06-Apr-20 18:00	10-Feb-20 13:00	30-Mar-20 13:00	-5.5		
PORIII.ED.PCBP1000	Construction of Pile Cap at Bored Pile Area (9nos caps+cantilever beam,21D/pc,5teams)	42.0	0.0	42.0	NE/2017/08(6days)	17-Feb-20 08:00	06-Apr-20 18:00	10-Feb-20 13:00	30-Mar-20 13:00	-5.5	0	0%
MPU20191108.7.4.2	Construction of U-trough Structure	213.0	77.0	136.0		24-Aug-19 08:00 A	23-Mar-20 18:00	02-Nov-19 13:00	30-Nov-20 13:00	251.5		
MPU20191108.7.4.2.3	Construction of Bored Pile (8 nos, 21D/pile, 1-5 teams)	42.0	63.0	24.0	NE/2017/08(6days)	24-Aug-19 08:00 A	06-Dec-19 18:00	07-Oct-20 13:00	05-Nov-20 13:00	269.5		
MPU20191108.7.4.2.3.7	Testing	42.0	63.0	24.0	NE/2017/08(6days)	24-Aug-19 08:00 A	06-Dec-19 18:00	07-Oct-20 13:00	05-Nov-20 13:00	269.5		
PORIII.UT.BP1030	Interface Core/Sonic Test (U-trough)	42.0	63.0	24.0	NE/2017/08(6days)	24-Aug-19 08:00 A	06-Dec-19 18:00	07-Oct-20 13:00	05-Nov-20 13:00	269.5	0	42.86%



Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
summary

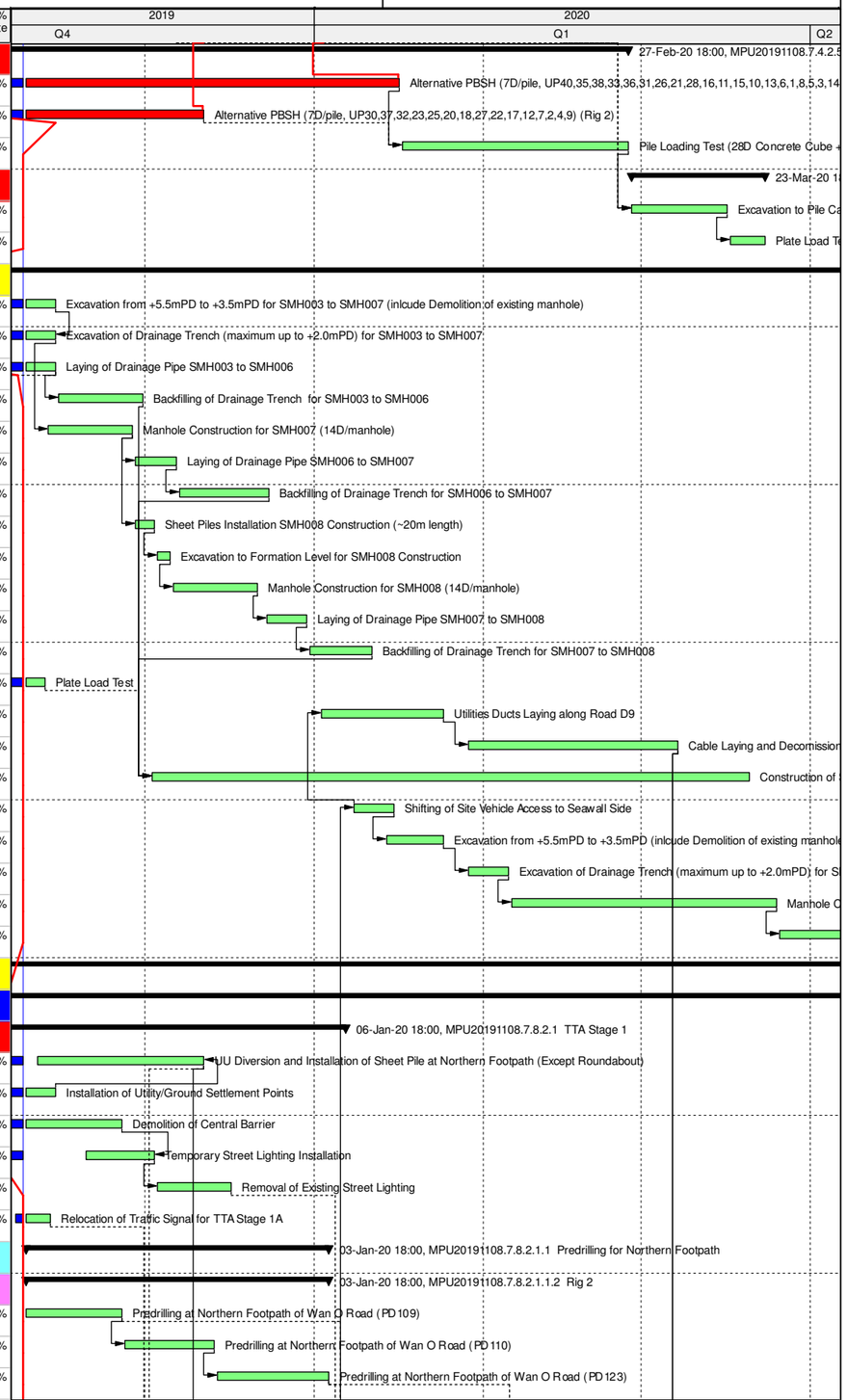
土木工程拓展署
Civil Engineering and Development Department

Contract No.: NE/2017/08
Cross Bay Link, Tseung Kwan O
Road D9 and Associated Works

Build King

Date	Revision	Checked	Approved
08-Nov-19	3 Month Rolling Programme (Dec to Feb)	TT	StL

Activity ID	Activity Name	Original Duration	Actual Duration	Remaining Duration	Calendar	Start	Finish	Late Start	Late Finish	Total Float	TRA	Activity % Complete
MPU20191108.7.4.2.5	**Construction of Alternative PBSH (40nos, 7D/pile, 1 to 5rigs)**	112.0	61.0	89.0	NE/2017/08(6days)	27-Aug-19 08:00 A	27-Feb-20 18:00	02-Nov-19 13:00	05-Nov-20 13:00	204.5		
PORIII.UT.HP1010	Alternative PBSH (7D/pile, UP40,35,38,33,36,31,26,21,28,16,11,15,10,13,6,1,8,5,3,14,19,24,29,34,39) (Rig1)	28.0	61.0	56.0	NE/2017/08(6days)	27-Aug-19 08:00 A	16-Jan-20 18:00	02-Nov-19 13:00	10-Jan-20 13:00	-5.5	0	0%
PORIII.UT.HP1020	Alternative PBSH (7D/pile, UP30,37,32,23,25,20,18,27,22,17,12,7,2,4,9) (Rig 2)	45.0	22.0	28.0	NE/2017/08(6days)	15-Oct-19 08:00 A	11-Dec-19 18:00	02-Nov-19 13:00	05-Dec-19 13:00	-5.5	0	37.78%
PORIII.UT.HP1410	Pile Loading Test (28D Concrete Cube + 14D Setup)	33.0	0.0	33.0	NE/2017/08(6days)	17-Jan-20 08:00	27-Feb-20 18:00	24-Sep-20 13:00	05-Nov-20 13:00	204.5	0	0%
MPU20191108.7.4.2.6	**Construction of U-trough Structure**	25.0	0.0	25.0		28-Feb-20 08:00	23-Mar-20 18:00	05-Nov-20 13:00	30-Nov-20 13:00	251.5		
PORIII.UT.ST1010	Excavation to Pile Cap Founding Level (+4.4mPD to +3.8mPD)(2000m3)	15.0	0.0	15.0	NE/2017/08(6days)	28-Feb-20 08:00	16-Mar-20 18:00	05-Nov-20 13:00	23-Nov-20 13:00	204.5	0	0%
PORIII.UT.ST1020	Plate Load Test	7.0	0.0	7.0	NE/2017/08(7days)	17-Mar-20 08:00	23-Mar-20 18:00	23-Nov-20 13:00	30-Nov-20 13:00	251.5	0	0%
MPU20191108.7.6	**Construction of the At-grade Noise Semi Enclosures**	203.0	76.0	127.0	NE/2017/08(6days)	09-Aug-19 08:00 A	16-Apr-20 18:00	14-Dec-19 13:00	02-May-20 13:00	11.5		
PORIII.AG.1010	Excavation from +5.5mPD to +3.5mPD for SMH003 to SMH007 (inlcude Demolition of existing manhole)	30.0	76.0	5.0	NE/2017/08(6days)	09-Aug-19 08:00 A	14-Nov-19 18:00	14-Dec-19 13:00	20-Dec-19 13:00	30.5	0	83.33%
PORIII.AG.1020	Excavation of Drainage Trench (maximum up to +2.0mPD) for SMH003 to SMH007	7.0	47.0	5.0	NE/2017/08(6days)	12-Sep-19 08:00 A	14-Nov-19 18:00	14-Dec-19 13:00	20-Dec-19 13:00	30.5	0	28.57%
PORIII.AG.1035	Laying of Drainage Pipe SMH003 to SMH006	14.0	15.0	5.0	NE/2017/08(6days)	23-Oct-19 08:00 A	14-Nov-19 18:00	14-Dec-19 13:00	20-Dec-19 13:00	30.5	0	64.29%
PORIII.AG.1040	Backfilling of Drainage Trench for SMH003 to SMH006	14.0	0.0	14.0	NE/2017/08(6days)	15-Nov-19 08:00	30-Nov-19 18:00	20-Dec-19 13:00	09-Jan-20 13:00	30.5	0	0%
PORIII.AG.1042	Manhole Construction for SMH007 (14D/manhole)	14.0	0.0	14.0	NE/2017/08(6days)	13-Nov-19 08:00	28-Nov-19 18:00	18-Dec-19 13:00	07-Jan-20 13:00	30.5	0	0%
PORIII.AG.1044	Laying of Drainage Pipe SMH006 to SMH007	7.0	0.0	7.0	NE/2017/08(6days)	29-Nov-19 08:00	06-Dec-19 18:00	07-Jan-20 13:00	15-Jan-20 13:00	30.5	0	0%
PORIII.AG.1046	Backfilling of Drainage Trench for SMH006 to SMH007	14.0	0.0	14.0	NE/2017/08(6days)	07-Dec-19 08:00	23-Dec-19 18:00	15-Jan-20 13:00	04-Feb-20 13:00	30.5	0	0%
PORIII.AG.1048	Sheet Piles Installation SMH008 Construction (~20m length)	3.0	0.0	3.0	NE/2017/08(6days)	29-Nov-19 08:00	02-Dec-19 18:00	07-Jan-20 13:00	10-Jan-20 13:00	30.5	0	0%
PORIII.AG.1048-01	Excavation to Formation Level for SMH008 Construction	3.0	0.0	3.0	NE/2017/08(6days)	03-Dec-19 08:00	05-Dec-19 18:00	10-Jan-20 13:00	14-Jan-20 13:00	30.5	0	0%
PORIII.AG.1048-02	Manhole Construction for SMH008 (14D/manhole)	14.0	0.0	14.0	NE/2017/08(6days)	06-Dec-19 08:00	21-Dec-19 18:00	14-Jan-20 13:00	03-Feb-20 13:00	30.5	0	0%
PORIII.AG.1048-03	Laying of Drainage Pipe SMH007 to SMH008	5.0	0.0	5.0	NE/2017/08(6days)	23-Dec-19 08:00	30-Dec-19 18:00	03-Feb-20 13:00	08-Feb-20 13:00	30.5	0	0%
PORIII.AG.1048-04	Backfilling of Drainage Trench for SMH007 to SMH008	10.0	0.0	10.0	NE/2017/08(6days)	31-Dec-19 08:00	11-Jan-20 18:00	08-Feb-20 13:00	20-Feb-20 13:00	30.5	0	0%
PORIII.AG.1050	Plate Load Test	7.0	4.0	3.0	NE/2017/08(6days)	05-Nov-19 08:00 A	12-Nov-19 18:00	06-Jan-20 13:00	09-Jan-20 13:00	46.5	0	57.14%
PORIII.AG.1055	Utilities Ducts Laying along Road D9	20.0	0.0	20.0	NE/2017/08(6days)	02-Jan-20 08:00	24-Jan-20 18:00	30-Jan-20 13:00	22-Feb-20 13:00	21.5	0	0%
PORIII.AG.1057	Cable Laying and Decomissioning of Existing Cross Road UUs at Wan O Road	34.0	0.0	34.0	NE/2017/08(6days)	29-Jan-20 08:00	07-Mar-20 18:00	22-Feb-20 13:00	02-Apr-20 13:00	21.5	0	0%
PORIII.AG.1060	Construction of SMH003-007 Footing (North and South) & SMH003-004 Footing (North) (14D/bay, 2-4 teams, 18 bays)	89.0	0.0	89.0	NE/2017/08(6days)	02-Dec-19 08:00	20-Mar-20 18:00	09-Jan-20 13:00	02-May-20 13:00	30.5	0	0%
PORIII.AG.1070	Shifting of Site Vehicle Access to Seawall Side	7.0	0.0	7.0	NE/2017/08(6days)	08-Jan-20 08:00	15-Jan-20 18:00	21-Jan-20 13:00	01-Feb-20 13:00	11.5	0	0%
PORIII.AG.1080	Excavation from +5.5mPD to +3.5mPD (inlcude Demolition of existing manhole) (SMH001A-SMH003)	10.0	0.0	10.0	NE/2017/08(6days)	14-Jan-20 08:00	24-Jan-20 18:00	30-Jan-20 13:00	11-Feb-20 13:00	11.5	0	0%
PORIII.AG.1090	Excavation of Drainage Trench (maximum up to +2.0mPD) for SMH001A to SMH003	7.0	0.0	7.0	NE/2017/08(6days)	29-Jan-20 08:00	05-Feb-20 18:00	11-Feb-20 13:00	19-Feb-20 13:00	11.5	0	0%
PORIII.AG.1100	Manhole Construction and pipe laying for SMH001A to SMH003	42.0	0.0	42.0	NE/2017/08(6days)	06-Feb-20 08:00	25-Mar-20 18:00	19-Feb-20 13:00	09-Apr-20 13:00	11.5	0	0%
PORIII.AG.1105	Backfilling of Drainage Trench for SMH001A to SMH003 (max 4 layers, 5D/layer)	15.0	0.0	15.0	NE/2017/08(6days)	26-Mar-20 08:00	16-Apr-20 18:00	09-Apr-20 13:00	02-May-20 13:00	11.5	0	0%
MPU20191108.7.8	**Wan O Road**	178.0	22.0	156.0	NE/2017/08(6days)	15-Oct-19 08:00 A	22-May-20 18:00	06-Dec-19 13:00	30-Mar-23 18:00	849.0		
MPU20191108.7.8.2	**Carriage Way Excavation Permit**	178.0	22.0	156.0	NE/2017/08(6days)	15-Oct-19 08:00 A	22-May-20 18:00	06-Dec-19 13:00	30-Mar-23 18:00	849.0		
MPU20191108.7.8.2.1	**TTA Stage 1**	69.0	22.0	47.0	NE/2017/08(6days)	15-Oct-19 08:00 A	06-Jan-20 18:00	06-Dec-19 13:00	05-Feb-20 13:00	22.5		
WO.CA.TTA1030	UU Diversion and Installation of Sheet Pile at Northern Footpath (Except Roundabout)	38.0	11.0	27.0	NE/2017/08(6days)	28-Oct-19 08:00 A	11-Dec-19 18:00	07-Dec-19 13:00	11-Jan-20 13:00	23.5	0	28.95%
WO.CA.TTA1040	Installation of Utility/Ground Settlement Points	15.0	22.0	5.0	NE/2017/08(6days)	15-Oct-19 08:00 A	14-Nov-19 18:00	06-Dec-19 13:00	12-Dec-19 13:00	23.5	0	66.67%
WO.CA.TTA1060	Demolition of Central Barrier	15.0	13.0	15.0	NE/2017/08(6days)	25-Oct-19 08:00 A	26-Nov-19 18:00	10-Dec-19 13:00	30-Dec-19 13:00	26.5	0	0%
WO.CA.TTA1070	Temporary Street Lighting Installation	21.0	5.0	11.0	NE/2017/08(6days)	04-Nov-19 08:00 A	02-Dec-19 18:00	20-Dec-19 13:00	06-Jan-20 13:00	26.5	0	47.62%
WO.CA.TTA1080	Removal of Existing Street Lighting	12.0	0.0	12.0	NE/2017/08(6days)	03-Dec-19 08:00	16-Dec-19 18:00	06-Jan-20 13:00	20-Jan-20 13:00	26.5	0	0%
WO.CA.TTA1110	Relocation of Traffic Signal for TTA Stage 1A	6.0	2.0	4.0	NE/2017/08(6days)	07-Nov-19 08:00 A	13-Nov-19 18:00	11-Dec-19 13:00	16-Dec-19 13:00	27.5	0	33.33%
MPU20191108.7.8.2.1.1	**Predrilling for Northern Footpath**	45.0	0.0	45.0	NE/2017/08(6days)	09-Nov-19 08:00	03-Jan-20 18:00	07-Dec-19 13:00	05-Feb-20 13:00	24.5		
MPU20191108.7.8.2.1.1.2	**Rig 2**	45.0	0.0	45.0	NE/2017/08(6days)	09-Nov-19 08:00	03-Jan-20 18:00	07-Dec-19 13:00	05-Feb-20 13:00	24.5		
WO.CA.TTA.PD1090	Predrilling at Northern Footpath of Wan O Road (PD109)	15.0	0.0	15.0	NE/2017/08(6days)	09-Nov-19 08:00	26-Nov-19 18:00	07-Dec-19 13:00	27-Dec-19 13:00	24.5	5	0%
WO.CA.TTA.PD1120	Predrilling at Northern Footpath of Wan O Road (PD110)	15.0	0.0	15.0	NE/2017/08(6days)	27-Nov-19 08:00	13-Dec-19 18:00	27-Dec-19 13:00	15-Jan-20 13:00	24.5	5	0%
WO.CA.TTA.PD1130	Predrilling at Northern Footpath of Wan O Road (PD123)	15.0	0.0	15.0	NE/2017/08(6days)	14-Dec-19 08:00	03-Jan-20 18:00	15-Jan-20 13:00	05-Feb-20 13:00	24.5		0%



Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
summary

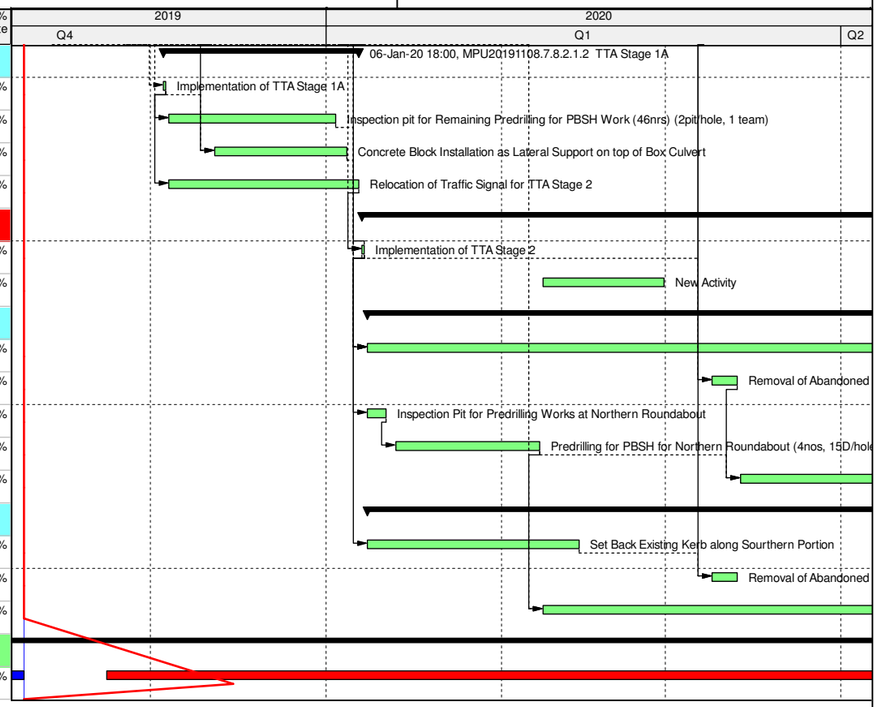
CEDD 土木工程拓展署 Civil Engineering and Development Department

Contract No.: NE/2017/08
Cross Bay Link, Tseung Kwan O
Road D9 and Associated Works

Build King

Date	Revision	Checked	Approved
08-Nov-19	3 Month Rolling Programme (Dec to Feb)	TT	StL

Activity ID	Activity Name	Original Duration	Actual Duration	Remaining Duration	Calendar	Start	Finish	Late Start	Late Finish	Total Float	TRA	Activity % Complete
MPU20191108.7.8.2.1.2 TTA Stage 1A		27.0	0.0	27.0	NE/2017/08(6days)	03-Dec-19 08:00	06-Jan-20 18:00	16-Dec-19 13:00	05-Feb-20 13:00	22.5		
WO.CA.TTA1A010	Implementation of TTA Stage 1A	1.0	0.0	1.0	NE/2017/08(6days)	03-Dec-19 08:00	03-Dec-19 18:00	16-Dec-19 13:00	17-Dec-19 13:00	11.5	0	0%
WO.CA.TTA1A050	Inspection pit for Remaining Predrilling for PBSH Work (46nrs) (2pit/hole, 1 team)	23.0	0.0	23.0	NE/2017/08(6days)	04-Dec-19 08:00	02-Jan-20 18:00	06-Jan-20 13:00	05-Feb-20 13:00	25.5	0	0%
WO.CA.TTA1A060	Concrete Block Installation as Lateral Support on top of Box Culvert	18.0	0.0	18.0	NE/2017/08(6days)	12-Dec-19 08:00	04-Jan-20 18:00	11-Jan-20 13:00	05-Feb-20 13:00	23.5	0	0%
WO.CA.TTA1A070	Relocation of Traffic Signal for TTA Stage 2	26.0	0.0	26.0	NE/2017/08(6days)	04-Dec-19 08:00	06-Jan-20 18:00	17-Dec-19 13:00	20-Jan-20 13:00	11.5	0	0%
MPU20191108.7.8.2.3 TTA Stage 2		109.0	0.0	109.0	NE/2017/08(6days)	07-Jan-20 08:00	22-May-20 18:00	20-Jan-20 13:00	30-Mar-23 18:00	849.0		
WO.CA.TTA2010	Implementation of TTA Stage 2	1.0	0.0	1.0	NE/2017/08(6days)	07-Jan-20 08:00*	07-Jan-20 18:00	20-Jan-20 13:00	21-Jan-20 13:00	11.5	0	0%
WO.CA.TTA2020	New Activity	19.0	0.0	19.0	NE/2017/08(6days)	08-Feb-20 08:00*	29-Feb-20 18:00	09-Mar-23 08:00	30-Mar-23 18:00	914.0		0%
MPU20191108.7.8.2.3.1 Northern Portion		108.0	0.0	108.0	NE/2017/08(6days)	08-Jan-20 08:00	22-May-20 18:00	05-Feb-20 13:00	17-Jun-20 13:00	21.5		
WO.CA.TTA2NP.1020	Construction of PBSH (Northern Footpath except Roundabout) (46nos, 7D/pile, 2 to 4rigs)	108.0	0.0	108.0	NE/2017/08(6days)	08-Jan-20 08:00	22-May-20 18:00	05-Feb-20 13:00	17-Jun-20 13:00	21.5	0	0%
WO.CA.TTA2NP.1030	Removal of Abandoned Duct (North Part)	5.0	0.0	5.0	NE/2017/08(6days)	09-Mar-20 08:00	13-Mar-20 18:00	02-Apr-20 13:00	09-Apr-20 13:00	21.5	0	0%
WO.CA.TTA2NP.1035	Inspection Pit for Predrilling Works at Northern Roundabout	4.0	0.0	4.0	NE/2017/08(6days)	08-Jan-20 08:00	11-Jan-20 18:00	05-Feb-20 13:00	10-Feb-20 13:00	21.5	0	0%
WO.CA.TTA2NP.1040	Predrilling for PBSH for Northern Roundabout (4nos, 15D/hole, 3 rigs)	20.0	0.0	20.0	NE/2017/08(6days)	13-Jan-20 08:00	07-Feb-20 18:00	10-Feb-20 13:00	04-Mar-20 13:00	21.5	7	0%
WO.CA.TTA2NP.1050	Construction of PBSH (14nos, 7D/pile, 2 to 4rigs) (Roundabout North Portion)	34.0	0.0	34.0	NE/2017/08(6days)	14-Mar-20 08:00	27-Apr-20 18:00	09-Apr-20 13:00	25-May-20 13:00	21.5	0	0%
MPU20191108.7.8.2.3.2 Southern Portion and Central Barrier		108.0	0.0	108.0	NE/2017/08(6days)	08-Jan-20 08:00	22-May-20 18:00	04-Mar-20 13:00	17-Jun-20 13:00	21.5		
WO.CA.TTA2SP.1010	Set Back Existing Kerb along Sourthern Portion	30.0	0.0	30.0	NE/2017/08(6days)	08-Jan-20 08:00	14-Feb-20 18:00	07-May-20 13:00	11-Jun-20 13:00	94.5	0	0%
WO.CA.TTA2SP.1020	Removal of Abandoned Duct (South Part)	5.0	0.0	5.0	NE/2017/08(6days)	09-Mar-20 08:00	13-Mar-20 18:00	11-Jun-20 13:00	17-Jun-20 13:00	75.5	0	0%
WO.CA.TTA2SP.1030	Predrilling for PBSH (16nos at Central Barrier and Roundabout Southern Portion, 15D/hole, 3rigs)	84.0	0.0	84.0	NE/2017/08(6days)	08-Feb-20 08:00	22-May-20 18:00	04-Mar-20 13:00	17-Jun-20 13:00	21.5	27	0%
MPU20191108.8 Miscellaneous Works (Portion I, II and III)		939.0	253.0	691.0	NE/2017/08(6days)	02-Jan-19 08:00 A	23-Mar-22 18:00	16-Nov-19 13:00	17-Mar-22 13:00	-5.5		
MISC4030	Tree Preservation and Protection Works	939.0	253.0	691.0	NE/2017/08(6days)	02-Jan-19 08:00 A	23-Mar-22 18:00	16-Nov-19 13:00	17-Mar-22 13:00	-5.5	0	26.41%



Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
summary

土木工程拓展署
Civil Engineering and Development Department

Contract No.: NE/2017/08
Cross Bay Link, Tseung Kwan O
Road D9 and Associated Works

Build King

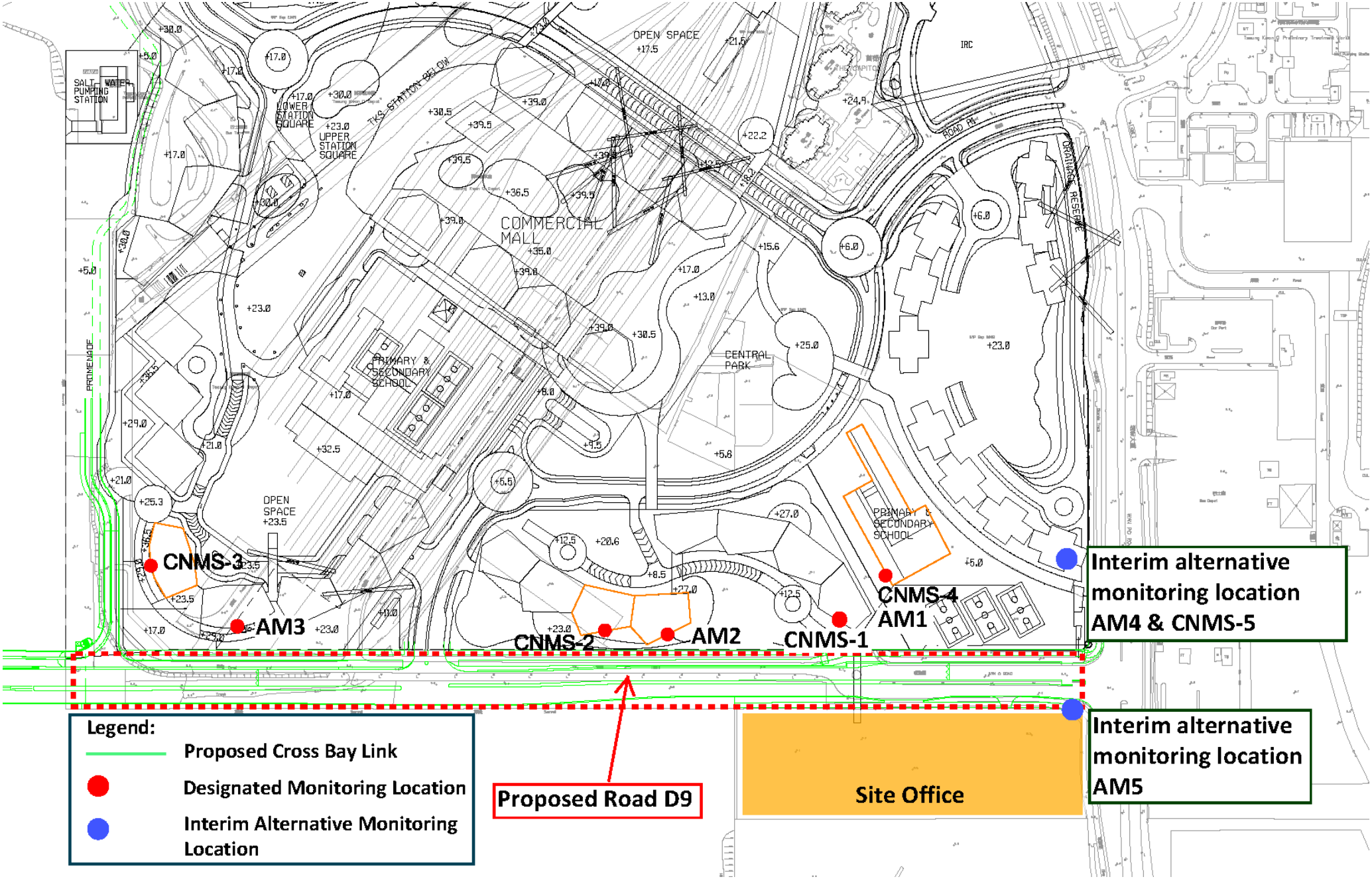
Date	Revision	Checked	Approved
08-Nov-19	3 Month Rolling Programme (Dec to Feb)	TT	StL

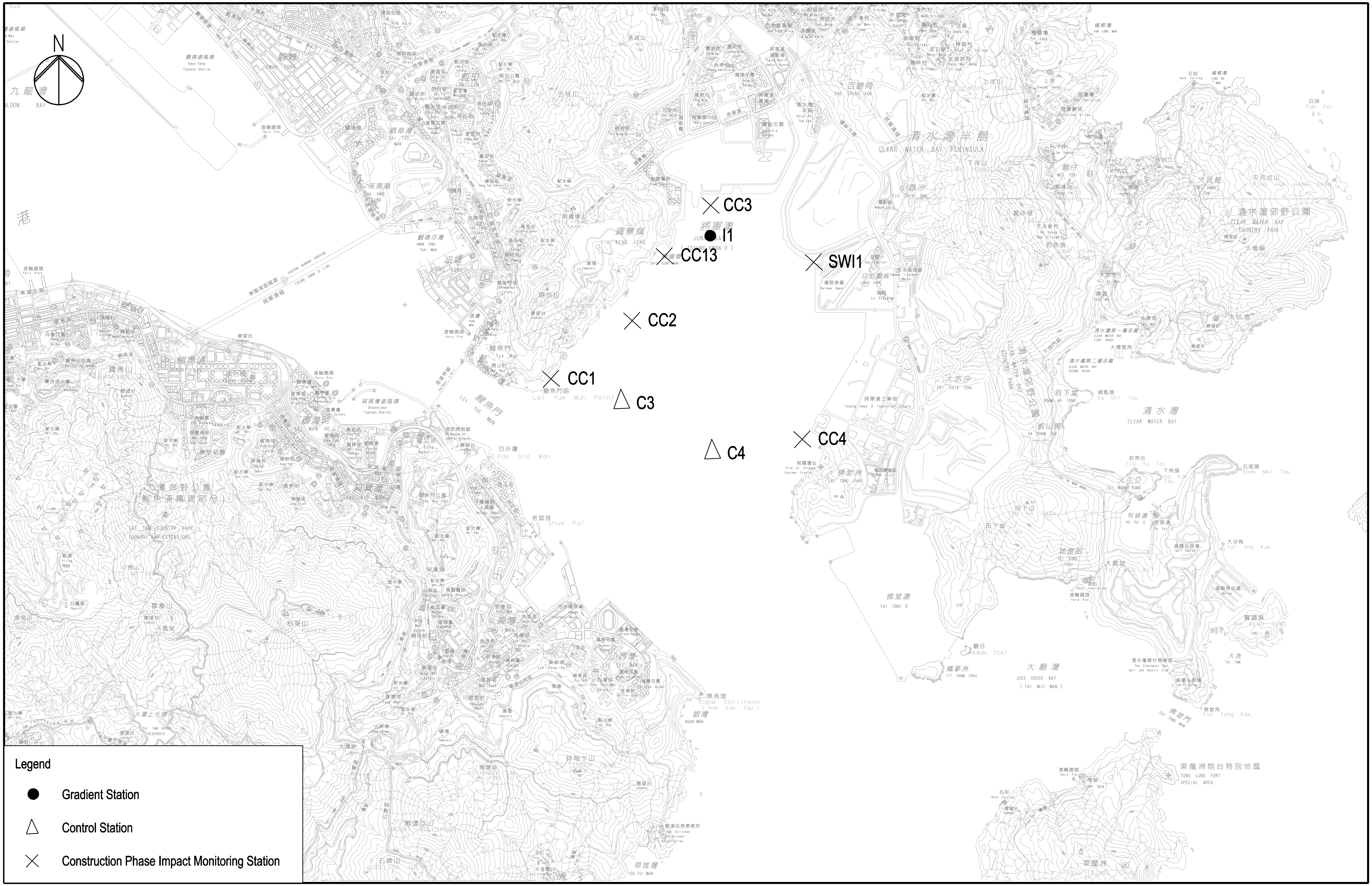
Appendix D

Monitoring Location
(Air Quality, Noise and Water Quality)

CEDD Contract Agreement No. EDO/04/2018 -
Environmental Team for Cross Bay Link, Tseung Kwan O
Designated and Interim Alternative Air Quality and Noise Monitoring Location

AUES





CEDD 土木工程拓展署 Civil Engineering and Development Department	ARUP Ove Arup & Partners Hong Kong Limited	Job Title: **Agreement No. CE 43/2008(HY)** **Cross Bay Link, Tseung Kwan O - Investigation**	Drawing Title: Locations of Water Quality Monitoring Stations	Drawn: GL; Date: 03/13; Checked: JP; Approved: ST; Scale: 1:30000 (A3)	Drawing No.: 209506/EMA/WQ/001; Status: FINAL; Rev.: C

Rev.	Description	Date
C	THIRD ISSUE	03/13
B	SECOND ISSUE	01/13
A	FIRST ISSUE	03/11

Appendix E

Event and Action Plan

EVENT	ACTION			
	Environmental Team (ET)	**Independent Environmental Checker (IEC)**	**Project Consultant**	**Contractor**
ACTION LEVEL				
Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and Project Consultant; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IEC and Project Consultant; 3. Advise the Project Consultant on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and Project Consultant; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial actions to IEC within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.

EVENT	ACTION			
	Environmental Team (ET)	**Independent Environmental Checker (IEC)**	**Project Consultant**	**Contractor**
LIMIT LEVEL				
Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform Project Consultant, Contractor, IEC and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and Project Consultant informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the Project Consultant on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; Implement the agreed proposals; 4. Amend proposal if appropriate.

EVENT	ACTION			
	Environmental Team (ET)	**Independent Environmental Checker (IEC)**	**Project Consultant**	**Contractor**
LIMIT LEVEL				
Exceedance for two or more consecutive samples	1. Notify IEC, Project Consultant, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and Project Consultant to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and Project Consultant informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst Project Consultant, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the Project Consultant accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the Project Consultant until the exceedance is abated.

EVENT	ACTION			
	Environmental Team (ET)	**Independent Environmental Checker (IEC)**	**Project Consultant**	**Contractor**
Action Level	1. Notify IEC and contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, Project Consultant and Contractor; 4. Discuss with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the analysed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the Project Consultant accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented	1. Submit noise mitigation proposals to IEC; 2. Implement noise mitigation proposals.
Limit Level	1. Identify source; 2. Inform IEC, Project Consultant, EPD and Contractor; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, Project Consultant and EPD the causes and actions taken for the exceedances; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and Project Consultant informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst Project Consultant, ET, and Contractor on the potential remedial actions; 2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the Project Consultant accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the Project Consultant until the exceedance is abated.

EVENT	ACTION			
	Environmental Team (ET)	**Independent Environmental Checker (IEC)**	**Project Consultant**	**Contractor**
Action level being exceeded by one sampling day at water sensitive receiver(s)	1. Identify the source(s) of impact by comparing the results with those collected at the gradient stations and the control stations as appropriate; 2. If exceedance is found to be caused by the marine works, repeat *in-situ* measurement to confirm findings; 3. Inform IEC and contractor; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. If exceedance occurs at WSD salt water intake, inform WSD; 6. Discuss mitigation measures with IEC and Contractor; 7. Repeat measurement on next day of exceedance.	1. Discuss mitigation measures with ET and Contractor; 2. Review proposal on mitigation measures submitted by Contractor and advise the Project Consultant accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss proposed mitigation measures with IEC; 2. Make agreement on the mitigation proposal.	1. Inform the Project Consultant and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Amend working methods if appropriate; 5. Discuss with ET and IEC and propose mitigation measures to IEC and Project Consultant; 6. Implement the agree mitigation measures.
Action level being exceeded by two or more consecutive sampling days at water sensitive receiver(s)	1. Identify the source(s) of impact by comparing the results with those collected at the gradient stations and the control stations as appropriate; 2. If exceedance is found to be caused by the marine works, repeat *in-situ* measurement to confirm findings; 3. Inform IEC and contractor; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, and Contractor; 6. Ensure mitigation measures are	1. Discuss mitigation measures with ET and Contractor; 2. Review proposal on mitigation measures submitted by Contractor and advise the Project Consultant accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss proposed mitigation measures with IEC; 2. Make agreement on the mitigation proposal; 3. Assess the effectiveness of the implemented mitigation measures.	1. Inform the Project Consultant and confirm notification of the noncompliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment and consider changes of working methods; 4. Discuss with ET, IEC and Project Consultant and propose mitigation measures to IEC and Project Consultant within 3 working

EVENT	ACTION			
	Environmental Team (ET)	**Independent Environmental Checker (IEC)**	**Project Consultant**	**Contractor**
	implemented; 7. Prepare to increase the monitoring frequency to daily; 8. If exceedance occurs at WSD salt water intake, inform WSD; 9. Repeat measurement on next day of exceedance.			days; 5. Implement the agreed mitigation measures.
Limit level being exceeded by one sampling day at water sensitive receiver(s)	1. Identify the source(s) of impact by comparing the results with those collected at the gradient stations and the control stations as appropriate; 2. If exceedance is found to be caused by the marine works, repeat *in-situ* measurement to confirm findings; 3. Inform IEC, contractor and EPD 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; 7. If exceedance occurs at WSD salt water intake, inform WSD. 8. ET should contact AFCD if the limit level is exceeded by one sampling day or two or more consecutive sampling days at water sensitive receiver(s).	1.Discuss mitigation measures with ET and Contractor; 2. Review proposal on mitigation measures submitted by Contractor and advise the Project Consultant accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss proposed mitigation measures with IEC, ET and Contractor; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Assess the effectiveness of the implemented mitigation measures.	1. Inform the Project Consultant and confirm notification of the noncompliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment and consider changes of working methods; 4. Discuss with ET, IEC and Project Consultant and submit proposal of mitigation measures to IEC and Project Consultant within 3 working days of notification; 5. Implement the agreed mitigation measures.
Limit level being exceeded by two or more	1. Identify the source(s) of impact by comparing the results with those collected at the gradient stations and the	1. Discuss mitigation measures with ET and Contractor;	1. Discuss proposed mitigation measures with IEC, ET and Contractor;	1. Inform the Project Consultant and confirm notification of the

EVENT	ACTION			
	Environmental Team (ET)	**Independent Environmental Checker (IEC)**	**Project Consultant**	**Contractor**
consecutive sampling days at water sensitive receiver(s)	control stations as appropriate; 2. If exceedance is found to be caused by the marine works, repeat *in-situ* measurement to confirm findings; 3. Inform IEC, contractor and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, and Contractor; 6. Ensure mitigation measures are implemented; 7. Prepare to increase the monitoring frequency to daily; 8. If exceedance occurs at WSD salt water intake, inform WSD; 9. Repeat measurement on next day of exceedance.	2. Review proposal on mitigation measures submitted by Contractor and advise the Project Consultant accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Assess the effectiveness of the implemented mitigation measures; 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit level.	noncompliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment and consider changes of working methods; 4. Discuss with ET, IEC and Project Consultant and submit proposal of mitigation measures to IEC and Project Consultant within 3 working days of notification; 5. Implement the agreed mitigation measures; 6. As directed by the Engineer, to slow down or to stop all or part of the construction activities.

Appendix F

Impact Monitoring Schedule of the Reporting Month and Coming Month

Impact Monitoring Schedule for the reporting month – November 2019

Date		Noise Monitoring (L_{eq}30min)	Air Quality Monitoring		Water Quality
			1-Hour TSP	24-Hour TSP	
Fri	1-Nov-19			✓	✓
Sat	2-Nov-19		✓		
Sun	3-Nov-19				
Mon	4-Nov-19				✓
Tue	5-Nov-19				
Wed	6-Nov-19				✓
Thu	7-Nov-19			✓	
Fri	8-Nov-19	✓	✓		✓
Sat	9-Nov-19				
Sun	10-Nov-19				
Mon	11-Nov-19				✓
Tue	12-Nov-19				
Wed	13-Nov-19			✓	
Thu	14-Nov-19	✓	✓		✓
Fri	15-Nov-19				
Sat	16-Nov-19				✓
Sun	17-Nov-19				
Mon	18-Nov-19				✓
Tue	19-Nov-19			✓	
Wed	20-Nov-19	✓	✓		✓
Thu	21-Nov-19				
Fri	22-Nov-19				✓
Sat	23-Nov-19				
Sun	24-Nov-19				
Mon	25-Nov-19			✓	✓
Tue	26-Nov-19	✓	✓		
Wed	27-Nov-19				✓
Thu	28-Nov-19				
Fri	29-Nov-19				✓
Sat	30-Nov-19			✓	

✓	Monitoring Day
	Sunday or Public Holiday

Marine Water Quality Monitoring Schedule

Scheduled Monitoring Day		Tides of Tai Miu Wan		Proposed Sampling Time (#)	
		Mid-Ebb	Mid-Flood	Mid-Ebb	Mid-Flood
1-Nov-19	Fri	15:08	09:41*	13:23 – 16:53	08:00 – 11:26*
4-Nov-19	Mon	05:17*	17:46	08:00 – 09:00*	16:01 – 19:31
6-Nov-19	Wed	07:29*	15:39	08:00 – 09:14*	13:54 – 17:24
8-Nov-19	Fri	09:25*	16:29	08:00 – 11:10*	14:44 – 18:14
11-Nov-19	Mon	11:26	17:29	09:41 – 13:11	15:44 – 19:14
14-Nov-19	Thu	13:07	18:35*	11:22 – 14:52	16:30 – 20:20*
16-Nov-19	Sat	09:11*	14:15	08:00 – 10:56*	12:30 – 16:00
18-Nov-19	Mon	15:55	11:17	14:10 – 17:40	09:32 – 13:02
20-Nov-19	Wed	18:54*	13:46	16:30 – 20:39*	12:01 – 15:31
22-Nov-19	Fri	08:23*	15:24	08:00 – 10:08*	13:39 – 17:09
25-Nov-19	Mon	17:02	11:10	15:17 – 18:47	09:25 – 12:55
27-Nov-19	Wed	12:43	18:09*	10:58 – 14:28	16:24 – 19:54
29-Nov-19	Fri	14:04	08:43*	12:19 – 15:49	08:00 – 10:28*

Remark: The water quality sampling will be undertaken within a three and half hour window of 1.75 hour before and 1.75 hour after mid flood and mid-ebb tides.
(*) Due to safety reason, the sampling event will be started at 08:00 at the earliest or 16:30 at the latest to avoid sampling in dark.

Impact Monitoring Schedule for coming month – December 2019

Date		Noise Monitoring (L_{eq}30min)	Air Quality Monitoring		Water Quality
			1-Hour TSP	24-Hour TSP	
Sun	1-Dec-19				
Mon	2-Dec-19	✓	✓		✓
Tue	3-Dec-19				
Wed	4-Dec-19				✓
Thu	5-Dec-19				
Fri	6-Dec-19			✓	✓
Sat	7-Dec-19		✓		
Sun	8-Dec-19				
Mon	9-Dec-19				✓
Tue	10-Dec-19				
Wed	11-Dec-19				✓
Thu	12-Dec-19			✓	
Fri	13-Dec-19	✓	✓		✓
Sat	14-Dec-19				
Sun	15-Dec-19				
Mon	16-Dec-19				✓
Tue	17-Dec-19				
Wed	18-Dec-19			✓	✓
Thu	19-Dec-19	✓	✓		
Fri	20-Dec-19				✓
Sat	21-Dec-19				
Sun	22-Dec-19				
Mon	23-Dec-19	✓	✓	✓	✓
Tue	24-Dec-19				
Wed	25-Dec-19				
Thu	26-Dec-19				
Fri	27-Dec-19				✓
Sat	28-Dec-19		✓	✓	
Sun	29-Dec-19				
Mon	30-Dec-19				✓
Tue	31-Dec-19				

Remark: No marine excavation work will be carried out during Christmas Holiday on 25 and 26 Dec 2019.

✓	Monitoring Day
	Sunday or Public Holiday

Marine Water Quality Monitoring Schedule

Scheduled Monitoring Day		Tides of Tai Miu Wan		Proposed Sampling Time (#)	
		Mid-Ebb	Mid-Flood	Mid-Ebb	Mid-Flood
2-Dec-2019	Mon	3:35*	15:33	08:00 - 09:00*	13:48 – 17:18
4-Dec-2019	Wed	5:28*	12:46	08:00 – 09:00*	11:01 – 14:31
6-Dec-2019	Fri	7:10*	14:56	08:00 – 8:55*	13:11 – 16:41
9-Dec-2019	Mon	10:06	16:11	08:21 – 11:51	14:26 – 17:56
11-Dec-2019	Wed	11:28	17:01	9:43 – 13:13	15:16 – 18:46
13-Dec-2019	Fri	7:32*	12:43	08:00 – 09:32*	10:58 – 14:28
16-Dec-2019	Mon	9:59	14:56	08:14 – 11:44	13:11 – 16:41
18-Dec-2019	Wed	11:53	17:09	10:08 – 13:38	15:24 – 18:54
20-Dec-2019	Fri	6:47*	13:41	08:00 – 09:00*	11:56 – 15:26
23-Dec-2019	Mon	9:58	15:49	08:13 – 11:43	14:04 – 17:34
27-Dec-2019	Fri	7:51*	13:07	08:00 – 09:36*	11:22 – 14:52
30-Dec-2019	Mon	9:59	15:02	08:14 – 11:44	13:17 – 16:47

Remark: The water quality sampling will be undertaken within a three and half hour window of 1.75 hour before and 1.75 hour after mid flood and mid-ebb tides.
(*) Due to safety reason, the sampling event will be started at 08:00 at the earliest or 16:30 at the latest to avoid sampling in dark.

Appendix G

Calibration Certificates of Equipment and Accreditation Laboratory Certificate

Hong Kong Accreditation Service
香港認可處

Certificate of Accreditation
認可證書

This is to certify that
特此證明

ALS TECHNICHEM (HK) PTY LIMITED

11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, New Territories, Hong Kong
香港新界葵涌永業街1-3號忠信針織中心11樓

has been accepted by the HKAS Executive, on the recommendation of the Accreditation Advisory Board, as a
為香港認可處執行機關根據認可諮詢委員會建議而接受的

HOKLAS Accredited Laboratory
「香港實驗所認可計劃」認可實驗所

This laboratory meets the requirements of ISO / IEC 17025 : 2005 – General requirements for the competence
此實驗所符合ISO / IEC 17025 : 2005 -《測試及校正實驗所能力的通用規定》所訂的要求，
of testing and calibration laboratories and it has been accredited for performing specific tests or calibrations as
獲認可進行載於香港實驗所認可計劃《認可實驗所名冊》內下述測試類別中的指定
listed in the HOKLAS Directory of Accredited Laboratories within the test category of
測試或校正工作

Environmental Testing
環境測試

This laboratory is accredited in accordance with the recognised International Standard ISO / IEC 17025 : 2005.
本實驗所乃根據公認的國際標準 ISO / IEC 17025 : 2005 獲得認可。
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory
這項認可資格演示在指定範疇所需的技術能力及實驗所質量管理體系的運作
quality management system (see joint IAF-ILAC-ISO Communiqué).
(見國際認可論壇、國際實驗所認可合作組織及國際標準化組織的聯合公報)。

The common seal of the Hong Kong Accreditation Service is affixed hereto by the authority of the HKAS Executive
香港認可處根據認可處執行機關的權限在此蓋上通用印章

CHAN Sing Sing, Terence, Executive Administrator
執行幹事 陳成城
Issue Date : 5 May 2009
簽發日期：二零零九年五月五日

Registration Number : HOKLAS 066
註冊號碼：

Date of First Registration : 15 September 1995
首次註冊日期：一九九五年九月十五日

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Junction of Wan Po Road and Wan O Road Date of Calibration: 2-Nov-19
Location ID : AM5 Next Calibration Date: 2-Jan-20
Name and Model: TISCH HVS Model TE-5170 Technician: Ho

CONDITIONS

Sea Level Pressure (hPa)	1015.7	Corrected Pressure (mm Hg)	761.775
Temperature (°C)	25.7	Temperature (K)	299

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.0968
Model->	5025A	Qstd Intercept ->	-0.00065
Serial # ->	1941		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.30	5.30	10.6	1.553	59	58.93	Slope = 26.8102
13	3.60	3.60	7.2	1.280	53	52.94	Intercept = 17.8477
10	2.40	2.40	4.8	1.045	46	45.95	Corr. coeff. = 0.9979
7	1.60	1.60	3.2	0.853	41	40.95	
5	1.30	1.30	2.6	0.769	38	37.96	

Calculations :

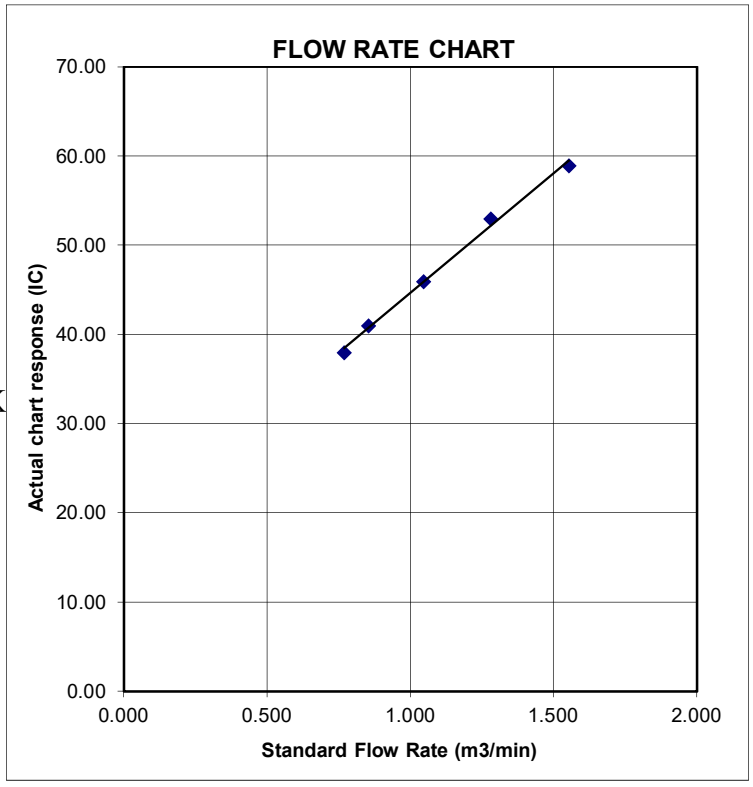
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K
Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



TISCH Environmental

RECALIBRATION DUE DATE:
February 5, 2020

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	February 5, 2019	**Rootsmeter S/N:** 438320	**Ta:** 293	°K
Operator:	Jim Tisch		**Pa:** 753.1	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **1941**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4830	3.2	2.00
2	3	4	1	1.0430	6.4	4.00
3	5	6	1	0.9300	7.9	5.00
4	7	8	1	0.8870	8.7	5.50
5	9	10	1	0.7320	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)
1.0036	0.6767	1.4197	0.9958	0.6714	0.8821
0.9993	0.9581	2.0078	0.9915	0.9506	1.2475
0.9973	1.0723	2.2448	0.9895	1.0640	1.3947
0.9962	1.1231	2.3544	0.9884	1.1144	1.4628
0.9908	1.3536	2.8395	0.9831	1.3431	1.7642
QSTD	**m=**	**2.09680**	**QA**	**m=**	**1.31298**
	b=	**-0.00065**		**b=**	**-0.00040**
	r=	**0.99999**		**r=**	**0.99999**

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

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

SUB-CONTRACTING REPORT

CONTACT	:	MR BEN TAM	WORK ORDER	:	**HK1908930**
CLIENT	:	**ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING**			
ADDRESS	:	RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T. HONG KONG	SUB-BATCH	:	1
			DATE RECEIVED	:	25-FEB-2019
			DATE OF ISSUE	:	4-MAR-2019
PROJECT	:	----	NO. OF SAMPLES	:	1
			CLIENT ORDER	:	----

General Comments

- **Sample(s) were received in ambient condition.**
- **Sample(s) analysed and reported on an as received basis.**
- **Calibration was subcontracted to and analysed by Action United Enviro Services.**

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories	*Position*
Richard Fung	General Manager

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd
Part of the ALS Laboratory Group

11/F. Chung Shun Knitting Centre 1 - 3 Wing Yip Street Kwai Chung N.T. Hong Kong
Tel. +852 2610 1044 Fax. +852 2610 2021 **www.alsglobal.com**

WORK ORDER : HK1908930
SUB-BATCH : 1
CLIENT : ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING
PROJECT : ----

ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK1908930-001	S/N: 3Y6503	AIR	25-Feb-2019	S/N: 3Y6503

Equipment Verification Report (TSP)

Equipment Calibrated:

Type:	Laser Dust monitor
Manufacturer:	Sibata LD-3B
Serial No.	3Y6503
Equipment Ref:	EQ112
Job Order	HK1908930

Standard Equipment:

Standard Equipment:	Higher Volume Sampler
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018
Last Calibration Date:	21 December 2018

Equipment Verification Results:

Testing Date: 7 January 2019

Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in mg/m^3 (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/60min)
2hr07min	09:01 ~ 11:08	18.5	1021.4	0.045	2403	19.0
2hr11min	11:13 ~ 13:24	18.5	1021.4	0.032	1577	12.1
2hr07min	13:30 ~ 15:37	18.5	1021.4	0.089	5129	40.5

Sensitivity Adjustment Scale Setting (Before Calibration) 655 (CPM)

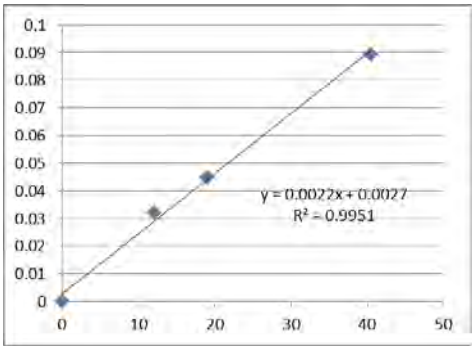
Sensitivity Adjustment Scale Setting (After Calibration) 655 (CPM)

Linear Regression of Y or X

Slope (K-factor): 0.0022

Correlation Coefficient 0.9975

Date of Issue 14 January 2019



Remarks:

1. Strong Correlation (R>0.8)
2. Factor 0.0022 should be apply for TSP monitoring

*If R<0.5, repair or re-verification is required for the equipment

Operator : Martin Li Signature : Date : 14 January 2019

QC Reviewer : Ben Tam Signature : Date : 14 January 2019

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location :	Gold King Industrial Building, Kwai Chung	Date of Calibration:	21-Dec-18
Location ID :	Calibration Room	Next Calibration Date:	21-Mar-19

CONDITIONS

Sea Level Pressure (hPa)	1016.1	Corrected Pressure (mm Hg)	762.075
Temperature (°C)	22.4	Temperature (K)	295

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.02017
Model->	5025A	Qstd Intercept ->	-0.03691
Calibration Date->	13-Feb-18	Expiry Date->	13-Feb-19

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.7	5.7	11.4	1.699	56	56.32	Slope = 34.0074
13	4.4	4.4	8.8	1.495	51	51.29	Intercept = -0.4093
10	3.4	3.4	6.8	1.317	45	45.26	Corr. coeff. = 0.9972
8	2.3	2.3	4.6	1.086	36	36.21	
5	1.4	1.4	2.8	0.851	28	28.16	

Calculations :

Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]

IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate

IC = corrected chart respones

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

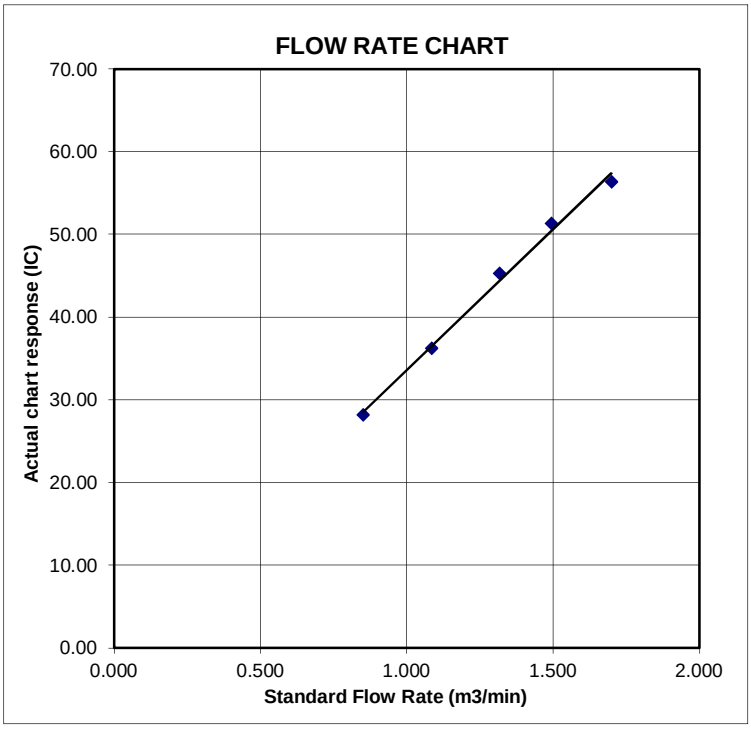
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C193189
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC19-1098) Date of Receipt / 收件日期 : 18 June 2019

Description / 儀器名稱 : Sound Level Meter (EQ016)
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-52
Serial No. / 編號 : 00464681
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (50 ± 25)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 20 June 2019

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By 測試 : Cheuk
K P Cheuk
Assistant Engineer

Certified By 核證 :
K C Lee
Engineer

Date of Issue 簽發日期 : 20 June 2019

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 — 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C193189
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C190176
CL281	Multifunction Acoustic Calibrator	CDK1806821

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	93.5	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 130	L_A	A	Fast	94.00	1	93.5 (Ref.)
				104.00		103.5
				114.00		113.5

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	93.5	Ref.
			Slow			93.5	± 0.3

Certificate of Calibration
校正證書

Certificate No. : C193189
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_A	A	Fast	94.00	63 Hz	67.3	-26.2 ± 1.5
					125 Hz	77.4	-16.1 ± 1.5
					250 Hz	84.8	-8.6 ± 1.4
					500 Hz	90.3	-3.2 ± 1.4
					1 kHz	93.5	Ref.
					2 kHz	94.8	+1.2 ± 1.6
					4 kHz	94.5	+1.0 ± 1.6
					8 kHz	92.5	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.1	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_C	C	Fast	94.00	63 Hz	92.7	-0.8 ± 1.5
					125 Hz	93.4	-0.2 ± 1.5
					250 Hz	93.5	0.0 ± 1.4
					500 Hz	93.6	0.0 ± 1.4
					1 kHz	93.5	Ref.
					2 kHz	93.4	-0.2 ± 1.6
					4 kHz	92.8	-0.8 ± 1.6
					8 kHz	90.6	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.2	-6.2 (+3.0 ; -6.0)

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 07619

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

94 dB :	63 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	12.5 kHz	: ± 0.70 dB
104 dB :	1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB :	1 kHz	: ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 — 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C194819
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC19-1098) Date of Receipt / 收件日期 : 27 August 2019

Description / 儀器名稱 : Sound Calibrator (EQ087)
Manufacturer / 製造商 : Rion
Model No. / 型號 : NC-74
Serial No. / 編號 : 34657231
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (50 ± 25)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 7 September 2019

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By 測試 : H T Wong, Technical Officer

Certified By 核證 : K C Lee, Engineer

Date of Issue 簽發日期 : 10 September 2019

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 — 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
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輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C194819
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C193756
CL281	Multifunction Acoustic Calibrator	CDK1806821
TST150A	Measuring Amplifier	C181288

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.1	± 0.3	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.001	1 kHz ± 1 %	± 1

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :
Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR BEN TAM	WORK ORDER:	HK1936450
CLIENT:	ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING		
ADDRESS:	RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T. HONG KONG	SUB-BATCH: LABORATORY: DATE RECEIVED: DATE OF ISSUE:	0 HONG KONG 26-Aug-2019 02-Sep-2019

COMMENTS

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client.
The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.
The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.
The "Next Calibration Date" is recommended according to best practice principle as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test:	Conductivity, Dissolved Oxygen, pH Value, Turbidity, Salinity and Temperature
Equipment Type:	Multifunctional Meter
Brand Name/ Model No.:	YSI Professional DSS
Serial No./ Equipment No.:	15H102620/ 15H103928 (EQW018)
Date of Calibration:	30-Aug-2019

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Mr Chan Siu Ming, Vico
Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK1936450

SUB-BATCH: 0
DATE OF ISSUE: 02-Sep-2019
CLIENT: ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: YSI Professional DSS
Serial No./ Equipment No.: 15H102620/ 15H103928 (EQW018)
Date of Calibration: 30-Aug-2019 Date of Next Calibration: 30-Nov-2019

PARAMETERS:

Conductivity

Method Ref: APHA (21st edition), 2510B

Expected Reading (µS/cm)	Displayed Reading (µS/cm)	Tolerance (%)
146.9	160.7	+9.4
6667	6485	-2.7
12890	12380	-4.0
58670	55669	-5.1
	Tolerance Limit (%)	±10.0

Dissolved Oxygen

Method Ref: APHA (21st edition), 4500-O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
7.43	7.41	-0.02
4.06	4.07	+0.01
2.05	2.20	+0.15
	Tolerance Limit (mg/L)	±0.20

pH Value

Method Ref: APHA (21st edition), 4500H:B

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	4.15	+0.15
7.0	7.07	+0.07
10.0	9.90	-0.10
	Tolerance Limit (pH unit)	±0.20

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr Chan Siu Ming, Vico
Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK1936450

SUB-BATCH: 0
DATE OF ISSUE: 02-Sep-2019
CLIENT: ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: YSI Professional DSS
Serial No./ Equipment No.: 15H102620/ 15H103928 (EQW018)
Date of Calibration: 30-Aug-2019 Date of Next Calibration: 30-Nov-2019

PARAMETERS:

Turbidity

Method Ref: APHA (21st edition), 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.02	--
4	3.76	-6.0
40	37.23	-6.9
80	73.56	-8.1
400	401.38	+0.3
800	780.12	-2.5
	Tolerance Limit (%)	±10.0

Salinity

Method Ref: APHA (21st edition), 2520B

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	--
10	10.30	+3.0
20	20.32	+1.6
30	31.32	+4.4
	Tolerance Limit (%)	±10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr Chan Siu Ming, Vico
Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK1936450

SUB-BATCH: 0
DATE OF ISSUE: 02-Sep-2019
CLIENT: ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: YSI Professional DSS
Serial No./ Equipment No.: 15H102620/ 15H103928 (EQW018)
Date of Calibration: 30-Aug-2019 Date of Next Calibration: 30-Nov-2019

PARAMETERS:
Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (^{o}C)	Displayed Reading (^{o}C)	Tolerance (^{o}C)
10.0	9.9	-0.1
20.0	18.9	-1.1
38.0	36.4	-1.6
	Tolerance Limit (^{o}C)	±2.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr Chan Siu Ming, Vico
Manager - Inorganic

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Web: www.crowcon.com

CROWCON
Detecting Gas Saving Lives
A HALMA COMPANY

Gas-Pro Calibration And Configuration Report

Method of calibration

This gas detector has been calibrated in accordance with the methods and procedures set out in Crowcons LRQA validated ISO9001 quality manual.

The test equipment used has been UKAS calibrated and is traceable to national standards. Standard Calibration gas mixtures have been prepared in accordance with BS EN ISO 6145-1-2008.

This Gas Detector must be used in accordance to the instruction manual.

Printed on 15 Jan 2019 **Serial number** 548062/01-001
Calibration date 15/01/2019 16:07:32
Result Pass

Name	CO (Dual Toxic)	**Pre cal reading**	0
Units	ppm	**Post cal reading**	248.3
Calibration level	250	**Last calibration**	15/01/2019
Alarm 1 level	30	**Alarm 2 level**	100
Result	Passed	**NextCalibration**	14/07/2019
Bump Enabled	No	**Calibrated to ATEX standards**	
Name	H2S (Dual Toxic)	**Pre cal reading**	0
Units	ppm	**Post cal reading**	25.03
Calibration level	25	**Last calibration**	15/01/2019
Alarm 1 level	5	**Alarm 2 level**	10
Result	Passed	**NextCalibration**	14/07/2019
Bump Enabled	No	**Calibrated to ATEX standards**	
Name	CH4	**Pre cal reading**	0
Units	%LEL	**Post cal reading**	57.0
Calibration level	57	**Last calibration**	15/01/2019
Alarm 1 level	20	**Alarm 2 level**	40
Result	Passed	**NextCalibration**	14/07/2019
Bump Enabled	No	**Calibrated to ATEX standards**	
Name	CO2	**Pre cal reading**	0
Units	%VOL	**Post cal reading**	1.92
Calibration level	2	**Last calibration**	15/01/2019
Alarm 1 level	0.5	**Alarm 2 level**	1.5
Result	Passed	**NextCalibration**	14/07/2019
Bump Enabled	No	**Calibrated to ATEX standards**	
Name	O2 3yr	**Pre cal reading**	0
Units	%VOL	**Post cal reading**	20.5
Calibration level	20.9	**Last calibration**	15/01/2019
Alarm 1 level	19.5	**Alarm 2 level**	23.5
Result	Passed	**NextCalibration**	14/07/2019
Bump Enabled	No	**Calibrated to ATEX standards**	

Action on startup	Auto zero confirm	**Allow user configuration**	Yes
Pellistor Saver level	90.00	**Pumped**	Yes
Follow on Cal interval	30	**Lock on bump fail**	No
Lock on cal due	No	**Bump type**	None
Prevent switch off	No	**Calibrate after bump**	No
Region	UK		

Calibration report number 37135

D. [signature] 16/1/19
Technician/Date

Appendix H

Database of Monitoring Results

24-hour TSP Monitoring Data for AM5

DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP	AVG AIR PRESS	STANDARD FLOW RATE	AIR VOLUME	FILTER WEIGHT (g)		DUST WEIGHT COLLECTED	24-hr TSP ($\mu g/m^3$)
		INITIAL	FINAL	(min)	MIN	MAX	AVG	(℃)	(hPa)	(m^3/min)	(std m^3)	INITIAL	FINAL	(g)	
1-Nov-19	24820	15403.02	15426.73	1422.60	48	48	48.0	25.7	1015.7	1.06	1508	2.7173	2.9429	0.2256	150
7-Nov-19	25005	15426.73	15450.73	1440.00	50	51	50.5	23.3	1016.3	1.23	1766	2.7976	3.1039	0.3063	173
13-Nov-19	24819	15450.73	15474.74	1440.60	49	49	49.0	24.1	1016.3	1.17	1682	2.7222	2.9734	0.2512	149
19-Nov-19	24965	15474.74	15498.74	1440.00	50	50	50.0	20.8	1018.6	1.22	1753	2.7721	3.0615	0.2894	165
25-Nov-19	24957	15498.74	15522.78	1442.40	52	53	52.5	22.4	1019.6	1.31	1885	2.7861	3.1032	0.3171	168
30-Nov-19	24972	15522.78	15547.08	1458.00	53	53	53.0	19.4	1019.7	1.34	1948	2.8185	3.1588	0.3403	175

Daytime Noise Measurement Results (dB) at CNMS1

Date	Start Time	1st Leq (5min)			2nd Leq (5min)			3rd Leq (5min)			4th Leq (5min)			5th Leq (5min)			6th Leq (5min)			Leq30min, dB(A)
		Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	
8-Nov-19	15:13	63.4	66.3	61.1	65.1	67.1	60.3	65.8	68.9	62.0	65.3	68.3	61.2	66.1	68.9	62.5	64.5	67.8	61.3	65.1
14-Nov-19	18:26	51.3	52.0	50.5	54.0	53.7	50.9	52.9	55.1	50.8	58.0	60.7	51.5	56.6	61.4	51.1	54.7	56.2	51.4	55.2
20-Nov-19	14:38	67.0	68.6	65.1	65.8	67.7	63.8	66.1	67.4	64.5	66.5	68.1	64.6	66.6	68.2	64.3	66.6	68.1	64.6	66.5
26-Nov-19	10:30	64.6	67.4	59.9	63.3	66.0	57.9	65.1	66.5	63.3	64.5	69.6	57.8	63.6	65.9	60.3	64.8	67.5	60.9	64.4

Daytime Noise Measurement Results (dB) at CNMS5

Date	Start Time	1st Leq (5min)			2nd Leq (5min)			3rd Leq (5min)			4th Leq (5min)			5th Leq (5min)			6th Leq (5min)			Leq30min, dB(A)
		Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	
8-Nov-19	14:34	63.8	65.0	61.5	64.0	65.5	60.5	64.9	67.5	60.5	62.1	64.0	60.5	63.3	65.5	61.5	63.5	66.5	60.0	63.7
14-Nov-19	13:55	65.8	67.0	61.4	66.2	67.6	61.6	65.6	66.0	60.9	64.5	65.2	59.6	65.0	66.5	60.9	66.3	67.6	61.0	65.6
20-Nov-19	13:44	66.7	67.1	60.6	66.3	67.1	60.3	65.7	65.7	59.1	66.9	66.5	60.4	67.8	67.3	61.0	67.1	68.1	62.0	66.8
26-Nov-19	13:07	64.5	67.0	60.2	65.1	67.0	61.5	64.0	64.9	62.8	65.8	66.3	63.7	63.7	65.1	61.7	66.3	68.5	62.0	65.0

Evening Noise Measurement Results (dB) at CNMS1											
Date	Start Time	1st Leq (5min)			2nd Leq (5min)			3rd Leq (5min)			Leq15min, dB(A)
		Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	
14-Nov-19	19:04	52.4	53.6	51.4	54.0	56.0	50.5	51.9	53.4	50.2	52.9
21-Nov-19	19:08	57.4	58.0	53.8	53.6	55.2	51.8	56.5	57.8	54.5	56.1
27-Nov-19	19:10	53.2	5.5	51.4	52.2	53.6	50.9	56.3	60.9	51.1	54.3

Evening Noise Measurement Results (dB) at CNMS5											
Date	Start Time	1st Leq (5min)			2nd Leq (5min)			3rd Leq (5min)			Leq15min, dB(A)
		Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	
6-Nov-19	19:38	62.7	65.8	57.9	63.1	66.7	57.2	62.9	65.6	59.4	62.9
14-Nov-19	19:27	59.4	62.5	54.5	60.7	64.0	54.3	59.2	63.1	53.8	59.8
21-Nov-19	19:34	61.3	64.4	56.3	61.7	64.9	56.9	61.3	65.1	55.1	61.4
27-Nov-19	19:40	61.6	64.6	57.4	60.5	63.4	55.8	60.2	63.1	56.4	60.8

Contract No. EDO/04/2018
Cross Bay Link, Tseung Kwan O

Impact Water Quality Monitoring Result

Sampling Date: 1-Nov-19

Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/L
13:53	CC1	ME	0	0	7.14	1.00	25.4	6.53	97.1	1.47	35.07	8.22	2.7
							25.5	6.43	95.8	1.47	34.98	8.22	2.4
						3.57	25.6	6.36	94.7	1.62	34.95	8.22	3.1
							25.6	6.35	94.6	1.66	34.96	8.22	3.7
						6.14	25.6	6.33	94.4	1.77	34.96	8.22	3.1
							25.6	6.33	94.3	1.83	34.96	8.22	3.5
13:58	CC2	ME	0	0	12.23	1.00	25.7	6.38	95.2	1.54	34.77	8.23	3.3
							25.7	6.37	95.0	1.49	34.77	8.23	3.9
						6.12	25.6	6.26	93.2	1.85	34.82	8.22	3.4
							25.6	6.20	92.3	2.14	34.84	8.22	3.4
						11.23	25.5	6.14	91.5	3.14	34.97	8.21	4
							25.5	6.16	91.8	3.45	35.00	8.22	3.7
14:18	CC3	ME	0	0	8.77	1.00	25.9	6.36	95.2	1.33	34.79	8.21	2.4
							25.9	6.33	95.5	1.29	34.79	8.21	2.2
						4.39	25.9	6.34	94.9	1.36	34.81	8.20	2
							25.9	6.34	94.9	1.28	34.81	8.21	2.3
						7.77	25.7	6.21	92.6	1.25	34.81	8.21	2.1
							25.7	6.21	92.6	1.26	34.81	8.21	2.5
13:43	CC4	ME	0	0	2.27								
						1.14	25.6	6.23	92.8	2.49	34.85	8.24	1.9
							25.6	6.20	92.4	2.51	34.85	8.23	1.6
14:01	CC13	ME	0	0	8.25								
						1.00	25.6	6.28	93.6	1.85	34.76	8.21	3.4
							25.6	6.27	93.5	1.85	34.76	8.21	3.6
						4.13	25.6	6.23	92.9	1.88	34.76	8.21	3
							25.6	6.22	92.7	1.97	34.77	8.21	3.1
						7.25	25.6	6.17	91.9	2.30	34.85	8.21	2.9
							25.5	6.16	91.7	2.56	34.94	8.21	3.3
13:27	SWI1	ME	0	0	4.25	1.00	25.7	6.31	94.0	1.81	34.76	8.25	2.8
							25.7	6.29	93.8	1.81	34.76	8.24	2.8
						3.25	25.6	6.25	93.1	1.80	34.76	8.22	3.9
							25.6	6.22	92.7	1.81	34.77	8.22	3.5
13:50	C3	ME	0	0	14.43	1.00	25.7	6.42	95.9	1.40	34.88	8.22	1.9
							25.7	6.40	95.6	1.41	34.89	8.22	1.9
						7.22	25.6	6.37	95.0	1.61	34.96	8.22	2.6
							25.5	6.36	94.7	1.71	34.99	8.22	2.9
						13.43	25.5	6.30	93.9	2.65	35.04	8.22	3.7
							25.5	6.29	93.7	2.93	35.05	8.22	4.1
13:46	C4	ME	0	0	13.73	1.00	25.8	6.45	96.5	1.25	34.82	8.23	2.3
							25.8	6.43	96.2	1.24	34.82	8.22	2.2
						6.87	25.7	6.38	95.2	1.40	34.90	8.22	3.1
							25.5	6.36	94.8	1.52	34.98	8.22	3.3
						12.73	25.5	6.35	94.6	2.50	35.11	8.23	3.2
							25.4	6.35	94.6	2.74	35.13	8.23	3.1
14:16	I1	ME	0	0	9.36	1.00	25.7	6.44	96.1	1.35	34.70	8.22	1.1
							25.7	6.42	95.9	1.36	34.71	8.22	1.3
						4.68	25.6	6.28	93.6	1.72	34.71	8.21	2.4
							25.6	6.25	93.1	1.81	34.71	8.21	2.2
						8.36	25.6	6.17	91.9	2.12	34.76	8.21	3.2
							25.6	6.12	91.1	2.38	34.79	8.21	2.9
10:48	CC1	MF	0	0	8.11	1.00	25.7	6.56	97.8	1.48	34.74	8.22	2.1
							25.7	6.53	97.4	1.47	34.76	8.22	2.4
						4.06	25.7	6.47	96.4	1.56	34.75	8.21	3
							25.6	6.46	96.4	1.64	34.75	8.21	2.9
						7.11	25.6	6.44	96.0	1.68	34.75	8.21	3.6
							25.6	6.41	95.6	1.67	34.75	8.21	3.4
10:53	CC2	MF	0	0	12.08	1.00	25.6	6.31	94.1	1.44	34.77	8.22	3.2
							25.7	6.28	93.7	1.44	34.78	8.21	2
						6.04	25.6	6.22	92.7	1.51	34.78	8.20	2.1
							25.6	6.21	92.5	1.50	34.78	8.20	3.3
						11.08	25.5	6.06	90.2	2.47	34.81	8.20	5
							25.5	6.02	89.6	2.81	34.81	8.20	4.4
11:13	CC3	MF	0	0	9.33	1.00	25.8	6.35	94.8	1.17	34.77	8.21	3.3
							25.8	6.32	94.4	1.20	34.78	8.21	3.8
						4.67	25.6	6.21	92.6	1.39	34.81	8.21	2.6
							25.6	6.17	92.0	1.43	34.81	8.20	2.9
						8.33	25.5	6.08	90.4	1.67	34.85	8.20	2.2
							25.5	6.05	90.0	1.68	34.86	8.20	2.4
10:39	CC4	MF	0	0	2.37								
						1.19	25.7	6.37	95.1	1.46	34.75	8.20	1.7
							25.7	6.32	94.3	1.42	34.75	8.20	1.6
10:56	CC13	MF	0	0	7.88								
						1.00	25.7	6.40	95.4	1.68	34.70	8.21	3.1
							25.7	6.35	94.6	1.67	34.76	8.21	2.7
						3.94	25.7	6.25	93.3	1.70	34.79	8.21	2.8
							25.6	6.22	92.7	1.70	34.80	8.21	2.4
						6.88	25.5	6.08	90.5	2.00	34.84	8.20	2.1
							25.5	6.05	90.0	2.07	34.83	8.20	2
10:22	SWI1	MF	0	0	4.27	1.00	25.7	6.47	96.5	1.67	34.72	8.16	2.2
							25.7	6.39	95.3	1.66	34.74	8.17	2.1
						3.27	25.6	6.28	93.7	1.76	34.75	8.17	2.2
							25.6	6.17	91.9	1.72	34.75	8.17	2.6
10:45	C3	MF	0	0	14.67	1.00	25.6	6.51	97.1	1.50	34.85	8.23	2.5
							25.6	6.45	96.2	1.52	34.85	8.22	2.9
						7.34	25.6	6.32	94.2	1.55	34.90	8.22	3.6
							25.6	6.31	94.0	1.58	34.92	8.22	3.7
						13.67	25.5	6.31	93.9	2.66	35.02	8.21	4.8
							25.4	6.31	93.9	2.26	35.05	8.21	5.2
10:41	C4	MF	0	0	15.73	1.00	25.7	6.35	94.8	1.24	34.80	8.20	3.4
							25.7	6.33	94.5	1.21	34.80	8.20	3
						7.87	25.6	6.27	93.5	1.54	34.88	8.20	3.6
							25.5	6.26	93.2	1.61	34.91	8.20	3.8
						14.73	25.4	6.30	93.8	1.87	35.10	8.21	2.8
							25.4	6.33	93.7	1.91	35.10	8.21	3.1
11:11	I1	MF	0	0	9.71	1.00	25.7	6.36	94.8	1.42	34.70	8.21	2.6
							25.7	6.33	94.4	1.40	34.70	8.21	2.8
						4.86	25.6	6.28	93.6	1.47	34.72	8.21	3.6
							25.6	6.25	93.1	1.52	34.74	8.20	3.7
						8.71	25.5	6.17	91.8	1.80	34.81	8.20	4.2
							25.5	6.05	90.1	2.00	34.87	8.20	4

Remarks: MF - Middle Flood tide
ME - Middle Ebb tide

Contract No. EDO/04/2018
Cross Bay Link, Tseung Kwan O

Impact Water Quality Monitoring Result													
Sampling Date:	**4-Nov-19**												
Date / Time	**Location**	**Tide***	**Co-ordinates**		**Water Depth**	**Sampling Depth**	**Temp**	**DO Conc**	**DO Saturation**	**Turbidity**	**Salinity**	**pH**	**SS**
			East	**North**	**m**	**m**	**℃**	**mg/L**	**%**	**NTU**	**ppt**	**unit**	**mg/L**
8:32	CC1	ME	0	0	8.09	1.00	25.5	6.86	102.1	0.98	35.01	8.24	1.9
							25.5	6.86	102.2	0.99	35.01	8.23	1.9
						4.05	25.4	6.69	99.5	1.13	35.01	8.23	3.4
							25.4	6.70	99.7	1.13	35.01	8.23	3.1
						7.09	25.4	6.68	99.3	1.34	35.03	8.23	4.2
							25.4	6.65	98.8	1.46	35.04	8.23	4.8
8:37	CC2	ME	0	0	11.99	1.00	25.6	6.70	99.9	2.06	35.05	8.23	3
							25.6	6.69	99.7	2.01	35.05	8.23	3.4
						6.00	25.5	6.74	100.4	1.53	35.03	8.23	3.8
							25.5	6.76	100.6	1.40	35.03	8.23	4.3
						10.99	25.3	6.44	95.7	2.54	35.07	8.22	4.2
							25.3	6.44	95.6	2.54	35.07	8.22	3.5
8:57	CC3	ME	0	0	9.23	1.00	25.8	6.59	98.6	1.29	34.95	8.22	1.5
							25.8	6.64	99.3	1.23	34.95	8.22	1.2
						4.62	25.6	6.58	98.3	1.40	35.02	8.23	1.4
							25.5	6.55	97.6	1.47	35.05	8.23	1.2
						8.23	25.5	6.48	96.5	1.45	35.10	8.23	1.3
							25.5	6.44	96.3	1.49	35.00	8.23	1.1
8:22	CC4	ME	0	0	2.15								
						1.08	25.6	6.59	98.2	1.01	34.89	8.24	2.1
							25.6	6.59	98.2	0.97	34.89	8.23	2.2
8:41	CC13	ME	0	0	8.55								
						1.00	25.5	6.92	103.0	1.31	34.98	8.18	4.5
							25.5	6.89	102.6	1.34	34.99	8.19	4.1
						4.28	25.4	6.81	101.2	1.23	35.02	8.21	2.7
							25.4	6.81	101.2	1.21	35.02	8.22	3
						7.55	25.4	6.70	99.5	1.57	35.02	8.23	2.3
							25.4	6.63	98.5	1.75	35.02	8.23	2.5
8:05	SWI1	ME	0	0	4.66	1.00	25.5	6.77	101.0	1.91	35.08	8.17	3.9
							25.5	6.75	100.6	1.89	35.09	8.17	3.6
						3.66	25.5	6.62	98.5	1.97	35.07	8.19	3.1
							25.4	6.59	98.0	2.00	35.07	8.20	2.9
8:28	C3	ME	0	0	14.75	1.00	25.5	6.72	100.0	1.03	34.98	8.23	1.8
							25.5	6.70	99.7	1.02	34.98	8.23	1.6
						7.38	25.4	6.63	98.6	1.02	35.01	8.22	2.6
							25.4	6.59	97.8	1.04	35.02	8.22	2.7
						13.75	25.3	6.51	96.7	2.24	35.12	8.22	2.8
							25.2	6.49	96.4	2.69	35.17	8.22	2.6
8:24	C4	ME	0	0	14.53	1.00	25.4	6.78	100.7	0.96	34.99	8.24	1.6
							25.4	6.76	100.5	0.97	35.00	8.24	1.8
						7.27	25.3	6.65	98.9	1.07	35.06	8.23	2.1
							25.3	6.63	98.5	1.06	35.08	8.23	2.3
						13.53	25.2	6.61	98.1	1.92	35.16	8.22	3.7
							25.2	6.62	98.3	2.11	35.20	8.23	4
8:55	I1	ME	0	0	9.44	1.00	25.5	6.76	100.5	1.81	34.84	8.23	2.6
							25.5	6.72	99.9	1.75	34.85	8.23	2.9
						4.72	25.4	6.59	97.9	1.87	35.00	8.22	3.4
							25.4	6.59	97.9	1.87	35.01	8.22	3.1
						8.44	25.3	6.42	95.4	2.02	35.07	8.22	3
							25.3	6.38	94.8	2.01	35.07	8.22	3.5
16:34	CC1	MF	0	0	9.03	1.00	25.5	7	104.4	1.10	35.02	8.26	2.2
							25.5	7.01	104.4	1.11	35.02	8.26	2.5
						4.52	25.5	6.92	103.0	1.14	35.02	8.25	2.6
							25.4	6.86	102.1	1.12	35.03	8.25	2.4
						8.03	25.4	6.57	97.7	1.38	35.03	8.25	3.5
							25.4	6.53	97.1	1.78	35.04	8.24	3.3
16:38	CC2	MF	0	0	12.38	1.00	25.5	6.92	102.9	1.57	35.02	8.26	3
							25.5	6.89	102.6	1.55	35.02	8.25	3.4
						6.19	25.4	6.68	99.3	1.98	35.04	8.24	3
							25.4	6.63	98.6	1.47	35.04	8.24	2.6
						11.38	25.4	6.55	97.4	2.13	35.04	8.24	2.7
							25.4	6.53	97.1	2.20	35.04	8.23	2.3
16:59	CC3	MF	0	0	9.17	1.00	25.9	6.75	101.1	1.14	34.86	8.22	1.2
							25.9	6.76	101.2	1.16	34.89	8.23	1
						4.59	25.6	6.49	96.7	1.62	35.05	8.23	<1.0
							25.5	6.49	96.7	1.67	35.07	8.23	<1.0
						8.17	25.5	6.47	96.3	1.88	35.08	8.23	<1.0
							25.5	6.44	95.9	1.85	35.09	8.23	<1.0
16:23	CC4	MF	0	0	2.15								
						1.08	25.6	6.74	100.4	1.19	34.88	8.25	1.8
							25.6	6.66	99.2	1.10	34.88	8.24	1.6
16:42	CC13	MF	0	0	7.96								
						1.00	25.5	6.96	103.7	1.25	35.00	8.26	2.2
							25.5	6.93	103.2	1.21	35.00	8.26	2.4
						3.98	25.3	6.61	98.1	1.52	35.02	8.25	3
							25.3	6.60	98.0	1.53	35.02	8.24	2.8
						6.96	25.3	6.40	95.1	2.28	35.08	8.24	3.4
							25.3	6.32	93.9	2.33	35.09	8.23	3.7
16:05	SWI1	MF	0	0	4.59	1.00	25.5	6.74	100.3	1.77	35.03	8.23	3.5
							25.5	6.72	100.0	1.79	35.03	8.23	3
						3.59	25.5	6.60	98.2	1.79	35.02	8.23	4.5
							25.5	6.61	98.4	1.76	35.03	8.23	4.3
16:31	C3	MF	0	0	14.42	1.00	25.5	6.75	100.4	1.05	34.98	8.25	1.6
							25.5	6.74	100.3	1.03	34.98	8.25	1.8
						7.21	25.4	6.70	99.6	1.04	35.00	8.24	1.7
							25.4	6.68	99.3	1.07	35.01	8.24	1.7
						13.42	25.3	6.59	97.8	2.13	35.10	8.24	2.6
							25.3	6.55	97.2	2.60	35.14	8.24	2.8
16:26	C4	MF	0	0	13.17	1.00	25.4	6.88	99.5	0.95	35.05	8.24	1.6
							25.4	6.81	99.5	0.81	35.06	8.24	1.6
						6.59	25.4	6.71	99.7	1.00	35.04	8.24	1.8
							25.4	6.70	99.6	1.01	35.05	8.24	1.6
						12.17	25.2	6.63	98.4	2.03	35.17	8.24	1.9
							25.2	6.63	98.4	2.09	35.17	8.24	1.5
16:56	I1	MF	0	0	9.11	1.00	25.5	6.65	98.9	1.90	34.93	8.24	3
							25.4	6.63	98.5	1.96	34.94	8.24	2.6
						4.56	25.4	6.60	98.1	1.97	34.96	8.24	3.1
							25.4	6.57	97.8	2.08	34.98	8.23	2.6
						8.11	25.3	6.35	94.3	2.52	35.07	8.23	2.9
							25.3	6.33	94.0	2.55	35.06	8.23	3.1

Remarks: MF - Middle Flood tide
ME - Middle Ebb tide
For SS, if the monitoring result is less than Limit of Report 1mg/L, the result value will be assumed as 1 for the calculation.

Contract No. EDO/04/2018
Cross Bay Link, Tseung Kwan O

Impact Water Quality Monitoring Result

Sampling Date: 6-Nov-19

Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/L
8:32	CC1	ME	0	0	8	1.00	25.0	6.89	101.8	0.64	35.11	8.26	5.4
							25.0	6.88	101.6	0.61	35.11	8.26	5
						4.00	25.0	6.87	101.5	0.67	35.10	8.26	3.7
							25.0	6.87	101.4	0.67	35.10	8.26	3.1
						7.00	25.0	6.87	101.5	0.67	35.10	8.26	1.6
							25.0	6.87	101.4	0.67	35.10	8.26	1.9
8:36	CC2	ME	0	0	12.15	1.00	25.0	6.95	102.6	0.82	35.10	8.28	2.4
							25.0	6.93	102.4	0.86	35.10	8.27	2.8
						6.08	25.0	6.90	101.9	0.79	35.11	8.27	3.3
							25.0	6.88	101.7	0.74	35.11	8.27	3
						11.15	25.0	6.83	100.8	1.36	35.12	8.27	2.8
							25.0	6.81	100.5	1.57	35.12	8.27	3.4
8:57	CC3	ME	0	0	9.22	1.00	25.3	6.23	92.2	1.04	34.71	8.23	3.8
							25.3	6.21	91.9	1.05	34.73	8.23	3.3
						4.61	25.2	6.49	96.0	1.16	34.88	8.23	3
							25.1	6.51	96.3	1.21	34.97	8.23	3.7
						8.22	25.0	6.46	95.5	2.15	35.08	8.23	3.5
							25.0	6.41	94.8	2.20	35.09	8.24	2.2
8:21	CC4	ME	0	0	2.28								
						1.14	25.1	6.82	100.9	1.03	35.19	8.26	2.9
							25.1	6.80	100.6	1.01	35.19	8.26	3.1
8:40	CC13	ME	0	0	8.46								
						1.00	25.0	6.84	100.9	1.27	35.02	8.27	2.7
							25.0	6.82	100.6	1.22	35.00	8.26	3.4
						4.23	25.0	6.83	101.0	1.16	35.07	8.26	3.2
							25.0	6.86	101.3	1.20	35.07	8.26	2.4
						7.46	25.0	6.88	101.6	1.03	35.09	8.26	3.1
							25.0	6.88	101.7	0.90	35.11	8.27	3
8:04	SWI1	ME	0	0	4.56	1.00	25.1	6.23	92.2	1.53	35.13	8.24	7.1
							25.1	6.19	91.5	1.57	35.13	8.24	8
						3.56	25.0	6.13	90.6	2.30	35.12	8.23	8.2
							25.0	6.10	90.2	2.34	35.12	8.23	6.7
8:28	C3	ME	0	0	14.42	1.00	25.2	6.74	99.9	1.02	35.12	8.26	3
							25.2	6.73	99.7	1.03	35.12	8.26	1.9
						7.21	25.1	6.68	98.9	1.10	35.12	8.25	3.6
							25.1	6.65	98.4	1.09	35.13	8.25	2.5
						13.42	25.1	6.63	98.0	1.47	35.14	8.25	3.2
							25.1	6.62	98.0	1.52	35.14	8.25	2.7
8:24	C4	ME	0	0	14.49	1.00	25.1	6.79	100.5	0.91	35.12	8.27	3.5
							25.1	6.76	100.0	0.90	35.12	8.27	3.6
						7.25	25.1	6.74	99.7	0.89	35.13	8.26	2.2
							25.1	6.74	99.7	0.85	35.13	8.26	2.5
						13.49	25.0	6.74	99.7	0.72	35.13	8.26	3.2
							25.0	6.75	99.8	0.70	35.13	8.26	2.1
8:43	I1	ME	0	0	9.8	1.00	25.0	6.67	98.5	1.69	34.98	8.26	4.1
							25.0	6.64	98.1	1.70	34.99	8.25	4.4
						4.90	25.0	6.58	97.2	1.57	35.01	8.25	4
							25.0	6.57	97.1	1.44	35.02	8.25	3.2
						8.80	25.0	6.60	97.6	1.53	35.09	8.25	2.8
							25.0	6.60	97.5	1.76	35.10	8.25	3.8
14:28	CC1	MF	0	0	8.65	1.00	25.1	7.01	103.6	0.76	35.05	8.25	3
							25.1	7.01	103.5	0.81	35.05	8.25	2.9
						4.33	25.1	7.01	103.7	0.79	35.06	8.24	2
							25.1	7.01	103.7	0.79	35.06	8.24	1.7
						7.65	25.1	6.98	103.2	0.91	35.06	8.24	2.6
							25.0	6.93	102.4	0.99	35.06	8.24	2
14:32	CC2	MF	0	0	12.25	1.00	25.1	6.9	102.1	0.85	34.92	8.25	1.9
							25.1	6.9	102.1	0.85	34.92	8.25	2.7
						6.13	25.1	6.89	101.8	0.97	35.08	8.25	2.7
							25.0	6.91	102.1	0.86	35.08	8.25	2.9
						11.25	25.2	6.91	100.7	1.33	35.09	8.25	2.3
							25.2	6.91	100.9	1.25	35.10	8.25	2.6
14:54	CC3	MF	0	0	9.06	1.00	25.1	6.53	97.3	0.99	35.01	8.23	1.1
							25.1	6.52	97.4	1.01	35.01	8.23	<1.0
						4.53	25.2	6.59	97.6	1.02	35.02	8.23	2.2
							25.2	6.58	97.5	1.09	35.02	8.23	3
						8.06	25.1	6.40	94.6	1.58	35.07	8.21	3.8
							25.1	6.40	94.6	1.81	35.08	8.21	3.2
14:18	CC4	MF	0	0	2.28								
						1.14	25.3	7.15	106.3	0.92	35.12	8.22	1.4
							25.3	7.16	106.3	0.89	35.12	8.23	1.9
14:36	CC13	MF	0	0	8.68								
						1.00	25.2	6.89	101.9	0.83	34.86	8.24	2
							25.2	6.86	101.6	0.81	34.89	8.24	2.2
						4.34	25.1	6.96	103.0	0.73	35.05	8.24	2.4
							25.1	6.99	103.4	0.73	35.06	8.24	2.1
						7.68	25.1	7.01	103.6	0.70	35.07	8.25	3
							25.1	7.03	104.0	0.63	35.08	8.25	3.2
14:00	SWI1	MF	0	0	4.27	1.00	25.3	6.57	97.4	1.62	35.11	8.01	3.7
							25.3	6.55	97.2	1.58	35.10	8.06	4.2
						3.27	25.2	6.52	96.6	1.76	35.09	8.08	4.2
							25.1	6.48	95.9	1.93	35.10	8.10	4.5
14:24	C3	MF	0	0	13.88	1.00	25.3	6.86	101.8	1.93	35.07	8.24	1.3
							25.3	6.88	101.6	1.89	35.07	8.24	<1.0
						6.94	25.1	6.71	99.3	0.74	35.12	8.23	<1.0
							25.1	6.70	99.1	0.77	35.12	8.23	1.3
						12.88	25.0	6.66	98.5	1.38	35.12	8.23	2.5
							25.0	6.66	98.4	1.52	35.12	8.23	2.3
14:20	C4	MF	0	0	13.56	1.00	25.2	6.88	102.0	0.71	35.10	8.23	2.3
							25.2	6.88	102.0	0.63	35.10	8.23	3.4
						6.78	25.1	6.80	100.6	0.61	35.12	8.23	3.6
							25.0	6.78	100.3	0.66	35.12	8.23	2.9
						12.56	25.0	6.69	98.9	1.06	35.15	8.22	3.4
							25.0	6.67	98.6	1.14	35.15	8.22	3.4
14:51	I1	MF	0	0	9.43	1.00	25.3	6.55	97.3	1.20	34.93	8.23	4.3
							25.3	6.57	97.4	1.19	34.98	8.22	3.4
						4.72	25.2	6.55	97.5	1.27	34.99	8.25	3.6
							25.2	6.55	97.5	1.26	34.99	8.25	4.8
						8.43	25.0	6.74	99.6	1.59	35.07	8.23	6
							25.0	6.73	99.4	1.80	35.08	8.24	6.2

Remarks: MF - Middle Flood tide
ME - Middle Ebb tide
For SS, if the monitoring result is less than Limit of Report 1mg/L, the result value will be assumed as 1 for the calculation.

Contract No. EDO/04/2018
Cross Bay Link, Tseung Kwan O

Impact Water Quality Monitoring Result													
Sampling Date:	**8-Nov-19**												
Date / Time	**Location**	**Tide***	**Co-ordinates**		**Water Depth**	**Sampling Depth**	**Temp**	**DO Conc**	**DO Saturation**	**Turbidity**	**Salinity**	**pH**	**SS**
			East	**North**	**m**	**m**	**℃**	**mg/L**	**%**	**NTU**	**ppt**	**unit**	**mg/L**
10:29	CC1	ME	0	0	9.89	1.00	24.8	7.25	106.8	0.47	35.15	8.29	3.2
							24.8	7.26	106.9	0.48	35.15	8.29	2.9
						4.95	24.8	7.28	107.3	0.68	35.17	8.29	3.2
							24.8	7.29	107.4	0.70	35.17	8.29	3.6
						8.89	24.7	7.20	105.8	0.62	35.17	8.29	3.8
							24.6	7.16	105.2	0.68	35.16	8.28	3.4
10:34	CC2	ME	0	0	12.25	1.00	24.8	7.42	109.3	0.40	35.15	8.3	2.6
							24.8	7.41	109.1	0.40	35.15	8.3	2.4
						6.13	24.7	7.40	108.9	0.42	35.16	8.3	3.3
							24.7	7.40	108.9	0.44	35.17	8.3	3.5
						11.25	24.6	6.98	102.5	1.55	35.17	8.3	4.1
							24.6	6.94	101.9	1.96	35.16	8.3	3.9
10:55	CC3	ME	0	0	9.82	1.00	25.0	7.11	105.1	0.84	35.11	8.27	3.1
							25.0	7.13	105.4	0.85	35.11	8.28	3.7
						4.91	24.9	6.81	100.4	1.22	35.11	8.28	4.3
							24.8	6.76	99.6	1.44	35.12	8.28	4.4
						8.82	24.6	6.71	98.6	1.89	35.14	8.27	6
							24.6	6.70	98.4	1.75	35.14	8.27	6.3
10:16	CC4	ME	0	0	2.15								
						1.08	24.7	7.21	106.1	0.99	35.16	8.26	3
							24.7	7.15	105.2	1.02	35.16	8.27	3.2
10:38	CC13	ME	0	0	8.14	1.00	24.8	7.31	107.6	0.60	34.99	8.30	2.6
							24.8	7.29	107.4	0.60	35.00	8.30	2.5
						4.07	24.7	7.39	108.6	0.47	35.14	8.30	3.4
							24.7	7.41	108.9	0.43	35.15	8.30	3.6
						7.14	24.6	7.38	108.4	0.34	35.16	8.30	4.5
							24.6	7.37	108.2	0.34	35.16	8.30	4.6
9:59	SWI1	ME	0	0	4.48	1.00	24.7	6.86	100.9	2.25	35.11	8.16	7.1
							24.7	6.89	101.3	2.08	35.12	8.17	7
						3.48	24.7	7.05	103.6	1.53	35.14	8.19	7.7
							24.7	7.06	103.7	1.58	35.14	8.20	7.2
10:26	C3	ME	0	0	15.83	1.00	24.8	6.98	102.8	0.96	35.09	8.27	5.8
							24.8	6.98	102.7	1.01	35.09	8.27	5.2
						7.92	24.7	6.88	101.2	0.85	35.12	8.27	7.4
							24.7	6.87	101.0	0.82	35.13	8.27	7
						14.83	24.6	6.85	100.6	2.23	35.18	8.26	7.7
							24.6	6.85	100.7	2.53	35.18	8.26	7.8
10:21	C4	ME	0	0	16.24	1.00	24.8	7.20	105.9	0.61	35.03	8.27	3.6
							24.8	7.19	105.8	0.64	35.03	8.27	3.9
						8.12	24.7	7.01	103.1	0.47	35.15	8.27	4.4
							24.7	7.01	103.1	0.49	35.15	8.27	4.2
						15.24	24.7	7.06	103.8	0.58	35.17	8.27	5.3
							24.7	7.08	104.1	0.77	35.18	8.27	5.1
10:52	I1	ME	0	0	10.35	1.00	24.9	7.13	105.3	0.93	35.05	8.29	2
							25.0	7.13	105.3	0.91	35.05	8.28	2.9
						5.18	24.9	7.13	105.1	1.14	35.13	8.28	3.4
							24.8	7.12	104.9	1.09	35.15	8.28	3.2
						9.35	24.6	7.00	102.6	2.60	35.15	8.28	4.2
							24.6	6.99	102.6	2.56	35.15	8.28	4.3
15:25	CC1	MF	0	0	10.49	1.00	24.9	7.54	111.2	0.40	35.16	8.31	1.7
							24.9	7.55	111.3	0.41	35.16	8.31	1.8
						5.25	24.9	7.54	111.2	0.59	35.16	8.31	2
							24.8	7.53	111.0	0.61	35.16	8.31	1.9
						9.49	24.7	7.38	108.6	0.80	35.16	8.31	1.7
							24.7	7.33	107.7	0.85	35.16	8.31	1.9
15:31	CC2	MF	0	0	12.29	1.00	24.8	7.57	111.4	0.47	35.13	8.31	1.9
							24.8	7.57	111.4	0.51	35.13	8.31	1.5
						6.15	24.7	7.55	111.1	0.49	35.13	8.31	2.6
							24.7	7.54	110.9	0.45	35.14	8.31	3.1
						11.29	24.6	7.03	103.2	2.07	35.15	8.31	2.8
							24.6	7	102.7	2.16	35.15	8.31	2.9
15:52	CC3	MF	0	0	9.52	1.00	25.2	7.04	104.3	0.79	35.03	8.27	2.7
							25.2	7.07	104.7	0.72	35.08	8.27	3.1
						4.76	24.7	6.83	100.6	1.50	35.12	8.28	3
							24.7	6.86	100.8	1.73	35.13	8.28	3.4
						8.52	24.6	6.86	100.8	1.39	35.13	8.28	4.9
							24.6	6.87	100.9	1.53	35.13	8.28	4.6
15:14	CC4	MF	0	0	2.38								
						1.19	24.9	7.45	109.9	1.26	35.15	8.30	3.4
							24.9	7.46	109.9	1.05	35.15	8.30	3
15:35	CC13	MF	0	0	8.71	1.00	24.9	7.43	109.4	0.58	35.05	8.29	1
							24.9	7.45	109.8	0.55	35.06	8.29	<1.0
						4.36	24.7	7.48	110.1	0.67	35.12	8.30	<1.0
							24.7	7.49	110.1	0.70	35.14	8.30	<1.0
						7.71	24.7	7.42	109.1	0.87	35.15	8.30	<1.0
							24.7	7.38	108.4	0.85	35.16	8.30	1.2
14:57	SWI1	MF	0	0	4.9	1.00	24.8	7.47	109.9	1.07	35.12	8.15	1.6
							24.8	7.50	110.4	1.00	35.13	8.16	1.8
						3.90	24.7	7.12	104.6	2.01	35.12	8.22	1.8
							24.7	7.09	104.1	2.43	35.12	8.22	1.7
15:21	C3	MF	0	0	16.26	1.00	24.8	7.23	106.4	0.54	35.09	8.30	<1.0
							24.8	7.22	106.2	0.54	35.09	8.30	<1.0
						8.13	24.7	6.98	102.6	0.68	35.13	8.29	1.1
							24.7	6.97	102.4	0.65	35.13	8.29	1.6
						15.26	24.7	6.95	102.1	1.17	35.16	8.28	1.2
							24.6	6.93	101.8	1.11	35.17	8.28	1.5
15:16	C4	MF	0	0	15.63	1.00	24.8	7.29	107.3	0.54	35.06	8.29	2
							24.8	7.29	107.3	0.56	35.07	8.29	2.1
						7.82	24.7	7.14	105.0	0.43	35.14	8.29	1.9
							24.7	7.13	104.9	0.40	35.15	8.29	2.1
						14.63	24.6	7.07	103.8	1.12	35.16	8.29	1.8
							24.6	7.04	103.3	1.02	35.16	8.29	2.2
15:50	I1	MF	0	0	9.4	1.00	25.1	7.18	106.0	0.80	34.88	8.28	2.8
							25.0	7.20	106.4	0.82	34.94	8.28	2.7
						4.70	24.8	7.01	103.1	1.36	35.13	8.29	2.8
							24.7	7.00	103.0	1.32	35.13	8.29	2.9
						8.40	24.7	7.04	103.4	1.37	35.13	8.29	3
							24.6	7.06	103.6	1.62	35.14	8.29	3.2

Remarks: MF - Middle Flood tide
ME - Middle Ebb tide
For SS, if the monitoring result is less than Limit of Report 1mg/L, the result value will be assumed as 1 for the calculation.

Contract No. EDO/04/2018
Cross Bay Link, Tseung Kwan O

Impact Water Quality Monitoring Result													
Sampling Date:	**11-Nov-19**												
Date / Time	**Location**	**Tide***	**Co-ordinates**		**Water Depth**	**Sampling Depth**	**Temp**	**DO Conc**	**DO Saturation**	**Turbidity**	**Salinity**	**pH**	**SS**
			East	**North**	**m**	**m**	**℃**	**mg/L**	**%**	**NTU**	**ppt**	**unit**	**mg/L**
10:40	CC1	ME	0	0	10.09	1.00	24.7	8.17	120.0	0.80	35.11	8.32	4.7
							24.7	8.22	120.8	0.80	35.11	8.32	4.8
						5.05	24.6	8.20	120.3	0.84	35.15	8.32	3.9
							24.6	8.18	120.0	0.90	35.15	8.32	3.9
						9.09	24.3	7.34	107.3	1.73	35.21	8.31	3.7
							24.2	7.31	106.6	1.87	35.23	8.3	4
10:44	CC2	ME	0	0	12.06	1.00	24.5	8.24	120.8	0.84	35.09	8.35	3.4
							24.5	8.32	121.9	0.87	35.09	8.35	3.5
						6.03	24.3	7.83	114.4	1.43	35.17	8.33	4.1
							24.3	7.81	114.1	1.58	35.18	8.33	3.9
						11.06	24.1	7.08	103.2	1.85	35.27	8.31	3.9
							24.1	7.04	102.5	1.73	35.29	8.3	4.2
10:53	CC3	ME	0	0	9.14	1.00	24.7	8.50	124.6	0.76	34.71	8.30	2.2
							24.6	8.54	125.3	0.77	35.03	8.31	2.4
						4.57	24.4	8.23	120.2	0.97	35.15	8.33	2.4
							24.3	8.17	119.4	1.09	35.17	8.33	2.7
						8.14	24.3	7.02	102.4	1.12	35.22	8.27	2.6
							24.3	7.05	102.9	1.09	35.22	8.27	2.4
10:28	CC4	ME	0	0	2.25								
						1.13	24.4	7.75	113.4	1.98	35.23	8.30	4.2
							24.3	7.75	113.3	1.81	35.23	8.30	4.8
10:47	CC13	ME	0	0	8.87								
						1.00	24.5	8.10	118.6	1.07	35.05	8.33	2.7
							24.5	8.09	118.4	1.09	35.06	8.33	3.3
						4.44	24.3	7.90	115.3	1.26	35.15	8.32	3.2
							24.3	8.05	115.9	1.31	35.18	8.35	3.4
						7.87	24.3	7.77	113.4	1.34	35.19	8.31	3.3
							24.2	7.72	112.7	1.34	35.19	8.31	3.2
10:12	SWI1	ME	0	0	4.58								
						1.00	24.7	8.58	126.0	0.68	35.12	8.37	3.2
							24.7	8.61	126.4	0.68	35.15	8.37	3.1
						3.58	24.4	8.47	123.9	1.10	35.17	8.33	4.3
							24.4	8.53	124.8	1.10	35.17	8.33	3.9
10:36	C3	ME	0	0	15.84	1.00	24.4	7.57	110.6	1.07	35.14	8.29	4.8
							24.4	7.58	110.8	1.04	35.14	8.29	4.4
						7.92	24.3	7.51	109.8	1.11	35.20	8.28	4.2
							24.3	7.51	109.7	1.14	35.20	8.28	3.9
						14.84	24.2	7.24	105.6	2.03	35.22	8.27	4
							24.2	7.19	104.9	2.17	35.22	8.27	4.4
10:32	C4	ME	0	0	14.98	1.00	24.4	7.57	110.7	1.42	35.12	8.29	3.6
							24.4	7.57	110.7	1.42	35.13	8.29	4.3
						7.49	24.3	7.32	106.8	1.35	35.17	8.27	4.8
							24.3	7.30	106.6	1.33	35.17	8.27	5.1
						13.98	24.2	7.15	104.2	1.79	35.17	8.26	5.2
							24.2	7.19	104.9	1.81	35.19	8.26	5.7
10:51	I1	ME	0	0	10.08	1.00	24.7	8.11	119.2	0.81	34.99	8.33	4
							24.7	8.14	119.7	0.84	35.01	8.33	4.1
						5.04	24.2	7.93	115.7	1.23	35.17	8.32	7.2
							24.2	7.85	114.4	1.40	35.17	8.32	7.3
						9.08	24.2	7.14	104.1	1.91	35.23	8.30	8.1
							24.1	7.11	103.5	2.10	35.26	8.30	7.7
16:27	CC1	MF	0	0	10.05	1.00	24.8	8.68	127.7	0.64	35.13	8.35	2.2
							24.8	8.69	127.9	0.66	35.13	8.35	2.3
						5.03	24.7	8.53	125.3	0.82	35.13	8.35	3.5
							24.7	8.46	124.4	0.96	35.13	8.35	4.2
						9.05	24.4	7.38	108.0	1.45	35.17	8.34	3.9
							24.7	7.33	107.7	0.85	35.16	8.31	4
16:33	CC2	MF	0	0	11.84	1.00	24.5	8.36	122.5	0.89	35.02	8.35	2.8
							24.5	8.43	123.5	0.86	35.04	8.35	2.5
						5.92	24.4	8.12	118.8	1.14	35.12	8.36	3.2
							24.4	8.08	118.2	1.21	35.14	8.35	3.4
						10.84	24.3	7.48	109.2	1.88	35.19	8.33	3.6
							24.2	7.43	108.4	1.87	35.20	8.33	3.8
16:55	CC3	MF	0	0	9.24	1.00	24.6	8.82	129.3	0.74	35.03	8.37	3.6
							24.6	8.84	129.6	0.78	35.05	8.37	4
						4.62	24.4	8.73	127.6	0.89	35.12	8.37	4.3
							24.3	8.64	126.3	0.96	35.14	8.36	3.9
						8.24	24.3	7.49	109.4	1.84	35.17	8.36	4.6
							24.3	7.45	109.6	1.75	35.18	8.35	4.3
16:16	CC4	MF	0	0	2.33								
						1.17	24.4	8.13	118.9	1.20	35.18	8.34	4
							24.4	8.12	118.8	1.16	35.18	8.34	3.7
16:37	CC13	MF	0	0	8.51								
						1.00	24.6	8.48	124.3	0.89	34.87	8.35	2.6
							24.6	8.52	125.0	0.86	34.94	8.35	3.1
						4.26	24.6	8.64	126.8	0.83	35.10	8.35	3.6
							24.6	8.66	127.1	0.82	35.10	8.35	3.4
						7.51	24.6	8.63	126.5	0.80	35.11	8.35	4.3
							24.5	8.57	125.6	0.86	35.12	8.35	3.9
15:59	SWI1	MF	0	0	4.26	1.00	24.6	8.66	127.0	0.74	35.02	8.29	3.7
							24.6	8.73	128.0	0.77	35.08	8.30	3.5
						3.26	24.4	8.93	130.8	0.83	35.13	8.34	5.3
							24.4	8.92	130.6	0.88	35.13	8.34	5.8
16:24	C3	MF	0	0	16.02	1.00	24.4	7.67	112.2	0.95	35.13	8.31	3.6
							24.4	7.68	112.3	0.93	35.13	8.30	3.6
						8.01	24.3	7.36	107.5	0.99	35.17	8.30	3.6
							24.3	7.35	107.3	1.01	35.18	8.30	3.6
						15.02	24.2	6.92	100.8	1.86	35.23	8.28	5.3
							24.1	6.90	100.5	1.73	35.25	8.28	4.7
16:19	C4	MF	0	0	16.47	1.00	24.4	7.57	110.6	1.29	35.08	8.32	4.5
							24.4	7.59	110.9	1.26	35.09	8.31	4.1
						8.24	24.4	7.39	107.5	1.53	35.09	8.31	4.7
							24.3	7.37	107.6	1.60	35.14	8.29	4.4
						15.47	24.3	7.29	106.4	1.92	35.15	8.28	4.3
							24.3	7.27	106.1	1.89	35.15	8.28	4.3
16:51	I1	MF	0	0	8.99	1.00	24.7	8.16	119.7	1.01	34.92	8.35	3.4
							24.7	8.23	120.8	1.06	34.98	8.35	3.2
						4.50	24.3	7.72	112.8	1.54	35.15	8.34	3.4
							24.2	7.68	112.0	1.78	35.18	8.34	3.1
						7.99	24.1	7.00	102.1	1.88	35.26	8.27	3.7
							24.1	6.99	101.9	1.81	35.26	8.27	3.9

Remarks: MF - Middle Flood tide
ME - Middle Ebb tide

Contract No. EDO/04/2018
Cross Bay Link, Tseung Kwan O

Impact Water Quality Monitoring Result

Sampling Date: 14-Nov-19

Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/L
12:49	CC1	ME	0	0	10.06	1.00	23.9	7.30	105.8	1.30	35.29	8.28	5.2
							23.8	7.26	105.3	1.35	35.29	8.28	4.8
						5.03	23.8	7.19	104.2	1.45	35.30	8.28	6.3
							23.8	7.14	103.5	1.56	35.32	8.28	5.8
						9.06	23.7	6.91	100.1	2.98	35.36	8.27	6.7
							23.7	6.88	99.5	3.33	35.37	8.27	7.1
12:53	CC2	ME	0	0	12.2	1.00	23.9	7.72	112.1	0.95	35.09	8.31	5.5
							23.9	7.73	112.1	1.01	35.09	8.31	5.3
						6.10	23.9	7.23	104.8	1.52	35.17	8.3	6.7
							23.8	7.20	104.4	1.67	35.20	8.3	6
						11.20	23.8	7.05	102.1	2.51	35.28	8.28	7.4
							23.8	6.99	101.2	2.90	35.29	8.28	7.1
13:14	CC3	ME	0	0	9.07	1.00	24.1	8.04	117.1	0.69	35.04	8.31	6.7
							24.1	8.08	117.6	0.69	35.04	8.31	6.2
						4.54	24.0	8.05	116.9	0.80	35.06	8.31	5.7
							24.0	8.00	116.2	0.84	35.07	8.31	6.1
						8.07	23.9	7.55	109.5	0.93	35.10	8.31	4.4
							23.9	7.49	108.7	0.90	35.11	8.30	4.7
12:37	CC4	ME	0	0	1.59								
						0.80	24.0	7.62	110.6	1.16	35.09	8.28	4.6
							24.0	7.63	110.8	1.06	35.08	8.28	4.9
12:58	CC13	ME	0	0	8.49								
						1.00	23.9	7.91	114.8	0.88	35.05	8.31	2.1
							24.0	7.94	115.2	0.85	35.05	8.31	2.4
						4.25	23.8	7.57	109.6	1.08	35.10	8.30	3
							23.8	7.57	109.6	1.07	35.10	8.30	3.4
						7.49	23.8	7.06	102.2	1.67	35.27	8.29	3.9
							23.7	7.04	101.9	1.82	35.29	8.29	3.7
12:31	SWI1	ME	0	0	4.63	1.00	24.0	7.39	107.4	1.37	35.18	8.19	3.5
							24.0	7.39	107.3	1.33	35.16	8.20	4
						3.63	23.9	7.40	107.2	1.68	35.16	8.23	6.1
							23.9	7.39	107.1	1.68	35.16	8.24	6.9
12:44	C3	ME	0	0	16	1.00	23.9	7.20	104.4	1.17	35.17	8.27	3.7
							23.9	7.20	104.4	1.16	35.17	8.27	3.1
						8.00	23.8	7.22	104.5	0.86	35.21	8.27	3.5
							23.8	7.23	104.6	0.79	35.21	8.27	3.1
						15.00	23.7	7.23	104.7	1.20	35.27	8.27	3.5
							23.7	7.19	104.0	1.50	35.30	8.27	3.9
12:40	C4	ME	0	0	14.98	1.00	24.0	7.95	115.5	0.82	35.12	8.30	2.8
							24.0	7.95	115.6	0.86	35.12	8.30	2.4
						7.49	23.9	7.81	113.3	0.73	35.16	8.30	3.3
							23.9	7.79	113.1	0.73	35.16	8.30	3.1
						13.98	23.7	7.05	101.9	3.45	35.38	8.28	4.5
							23.7	7.02	101.6	3.82	35.39	8.28	4
13:01	I1	ME	0	0	9.49	1.00	24.0	7.81	113.5	0.89	35.06	8.31	3.3
							24.0	7.79	113.1	0.97	35.07	8.31	3.8
						4.75	23.8	7.11	103.1	2.58	35.17	8.29	3.1
							23.8	7.10	102.8	2.97	35.18	8.28	3.3
						8.49	23.8	6.99	101.3	3.72	35.20	8.27	2.7
							23.8	6.96	100.8	3.89	35.21	8.27	3.1
16:49	CC1	MF	0	0	10.02	1.00	24.0	7.78	113.0	0.83	35.13	8.30	2.2
							24.0	7.81	113.4	0.86	35.12	8.30	2.9
						5.01	23.7	7.11	102.9	1.36	35.31	8.28	2.8
							23.8	7.11	102.9	1.35	35.30	8.28	3.4
						9.02	23.7	7.01	101.5	1.77	35.32	8.27	4.4
							23.7	6.96	100.7	1.89	35.33	8.27	4
16:53	CC2	MF	0	0	12.14	1.00	23.9	7.63	110.6	1.29	35.14	8.32	5.5
							23.9	7.63	110.6	1.29	35.14	8.32	5.2
						6.07	23.8	7.12	103.2	1.85	35.23	8.30	5.6
							23.8	7.11	103.0	1.90	35.24	8.29	5.7
						11.14	23.8	7.04	101.9	1.99	35.28	8.28	6.3
							23.7	7.02	101.6	2.04	35.30	8.28	6.1
17:08	CC3	MF	0	0	9.54	1.00	24.2	8.13	118.4	0.61	35.03	8.30	3.3
							24.2	8.18	119.1	0.65	35.03	8.31	3.3
						4.77	23.9	7.85	113.9	0.95	35.09	8.31	4.3
							23.9	7.86	114.0	0.93	35.09	8.30	4.6
						8.54	23.9	7.14	103.5	1.62	35.12	8.30	4.9
							23.9	7.01	101.6	2.12	35.14	8.30	4.5
16:38	CC4	MF	0	0	2.4								
						1.20	23.9	7.42	107.6	2.15	35.13	8.29	6.4
							23.9	7.37	106.9	2.18	35.14	8.28	6.6
16:57	CC13	MF	0	0	8.35								
						1.00	24.0	7.97	115.7	1.02	35.08	8.32	4.1
							24.0	8.01	116.2	0.83	35.08	8.32	4.5
						4.18	23.9	7.85	113.8	1.06	35.08	8.31	4.9
							23.8	7.80	112.9	1.11	35.08	8.31	4.6
						7.35	23.8	7.32	106.0	1.19	35.12	8.31	5.1
							23.8	7.27	105.2	1.28	35.14	8.30	5.4
16:32	SWI1	MF	0	0	4.35	1.00	24.0	7.31	106.2	1.43	35.10	8.24	6.6
							24.0	7.34	106.6	1.38	35.12	8.24	6.1
						3.35	24.0	7.36	106.9	1.18	35.14	8.27	3.6
							24.0	7.34	106.7	1.14	35.15	8.27	3.8
16:45	C3	MF	0	0	15.71	1.00	23.8	7.11	103.1	1.58	35.21	8.29	4.8
							23.8	7.11	103.0	1.59	35.21	8.29	4.4
						7.86	23.8	7.07	102.4	1.21	35.25	8.27	5
							23.7	7.08	102.5	1.12	35.25	8.27	5.3
						14.71	23.7	7.08	102.5	1.71	35.28	8.27	5.5
							23.7	7.07	102.3	1.97	35.29	8.27	5.3
16:41	C4	MF	0	0	16.18	1.00	24.1	8.01	116.5	0.74	35.12	8.32	3.7
							24.1	8.02	116.6	0.72	35.12	8.32	3.4
						8.09	24.0	7.98	116.0	0.71	35.13	8.32	3.1
							24.0	7.98	115.9	0.77	35.13	8.32	3.3
						15.18	23.7	7.20	104.2	2.41	35.35	8.30	3.1
							23.7	7.14	103.2	3.30	35.38	8.29	2.9
17:00	I1	MF	0	0	9.73	1.00	24.2	8.16	118.8	0.72	35.06	8.33	3.4
							24.2	8.17	119.0	0.74	35.06	8.33	3.5
						4.87	23.8	7.39	107.0	2.10	35.15	8.31	4.2
							23.8	7.34	106.3	2.34	35.16	8.30	4.5
						8.73	23.8	6.96	100.8	3.07	35.21	8.29	4.9
							23.8	6.95	100.7	3.25	35.23	8.28	4.7

Remarks: MF - Middle Flood tide
ME - Middle Ebb tide

Contract No. EDO/04/2018
Cross Bay Link, Tseung Kwan O

Impact Water Quality Monitoring Result													
Sampling Date:	**16-Nov-19**												
Date / Time	**Location**	**Tide***	**Co-ordinates**		**Water Depth**	**Sampling Depth**	**Temp**	**DO Conc**	**DO Saturation**	**Turbidity**	**Salinity**	**pH**	**SS**
			East	**North**	**m**	**m**	**℃**	**mg/L**	**%**	**NTU**	**ppt**	**unit**	**mg/L**
10:19	CC1	ME	0	0	8.1	1.00	23.8	7.46	108.0	2.10	35.14	8.3	3.4
							23.8	7.44	108.0	2.31	35.14	8.3	3.3
						4.05	23.7	7.14	103.2	2.05	35.24	8.28	5
							23.7	7.12	102.9	2.02	35.24	8.28	5.2
						7.10	23.7	7.08	102.3	2.18	35.25	8.27	6.9
							23.7	7.04	101.7	2.37	35.27	8.27	6.4
10:23	CC2	ME	0	0	12.25	1.00	23.7	7.31	105.6	2.46	35.15	8.29	7.8
							23.7	7.31	105.7	2.14	35.15	8.29	7.5
						6.13	23.7	6.91	99.9	3.40	35.21	8.28	8.1
							23.7	6.89	99.6	3.31	35.22	8.27	8.9
						11.25	23.6	6.83	98.7	3.79	35.26	8.26	9.8
							23.6	6.83	98.7	3.08	35.26	8.26	10.4
10:44	CC3	ME	0	0	9.58	1.00	23.8	7.29	105.5	0.76	35.02	8.27	6.1
							23.8	7.30	105.6	0.70	35.02	8.27	6.7
						4.79	23.7	7.25	104.8	0.81	35.06	8.27	7.2
							23.7	7.24	104.7	0.79	35.07	8.27	6.7
						8.58	23.7	6.62	95.8	2.35	35.31	8.26	7.3
							23.7	6.29	91.0	3.71	35.33	8.25	7.6
10:09	CC4	ME	0	0	2.17								
						1.09	23.8	7.23	104.7	1.24	35.11	8.30	4.2
							23.8	7.23	104.7	1.22	35.11	8.30	4.3
10:27	CC13	ME	0	0	8.3								
						1.00	23.8	7.32	106.0	1.23	35.16	8.29	10.6
							23.8	7.33	106.1	0.93	35.16	8.28	10.7
						4.15	23.8	7.34	106.2	0.98	35.16	8.28	12.6
							23.7	7.33	106.0	1.00	35.16	8.28	12.3
						7.30	23.7	7.20	104.1	0.98	35.16	8.27	13.6
							23.7	7.17	103.6	0.98	35.16	8.27	13.7
10:02	SWI1	ME	0	0	4.77	1.00	23.9	7.55	109.5	1.11	35.13	8.36	6.5
							23.9	7.58	109.8	1.08	35.12	8.35	6.2
						3.77	23.8	7.58	109.7	1.05	35.12	8.34	8.4
							23.8	7.55	109.4	1.00	35.12	8.32	8.2
10:16	C3	ME	0	0	14.39	1.00	23.8	7.49	108.5	0.86	35.17	8.30	4.6
							23.8	7.50	108.6	0.88	35.18	8.30	4.7
						7.20	23.7	7.40	107.0	0.94	35.24	8.29	6.5
							23.7	7.34	106.0	1.00	35.27	8.29	6.3
						13.39	23.6	7.19	103.9	1.93	35.34	8.28	8.6
							23.6	7.11	102.7	2.56	35.36	8.28	8
10:12	C4	ME	0	0	14.71	1.00	23.7	7.30	105.5	1.31	35.25	8.29	10.3
							23.7	7.30	105.6	1.32	35.24	8.29	10.5
						7.36	23.7	7.22	104.4	1.33	35.33	8.28	8.1
							23.6	7.20	104.1	1.36	35.35	8.28	8.8
						13.71	23.5	7.06	101.9	3.28	35.44	8.28	6.9
							23.5	7.06	101.9	3.32	35.44	8.28	6.6
10:31	I1	ME	0	0	10.1	1.00	23.8	7.47	108.1	0.78	35.09	8.29	5.6
							23.7	7.33	106.0	0.82	35.12	8.28	5.9
						5.05	23.7	7.29	105.3	0.86	35.13	8.28	7.5
							23.7	6.75	97.6	2.29	35.32	8.27	7.8
						9.10	23.7	6.65	96.2	3.74	35.34	8.26	8.7
							23.7	6.62	95.7	3.88	35.34	8.25	8.4
12:48	CC1	MF	0	0	8.28	1.00	23.9	7.48	108.6	0.88	35.17	8.30	5.3
							23.9	7.5	108.8	0.89	35.16	8.30	4.8
						4.14	23.7	7.24	104.7	1.15	35.25	8.29	4.1
							23.7	7.22	104.4	1.18	35.25	8.28	4.4
						7.28	23.7	7.21	104.3	1.14	35.26	8.28	3
							23.7	7.2	104.1	1.17	35.26	8.28	2.9
12:52	CC2	MF	0	0	12.84	1.00	23.9	7.49	108.6	1.03	35.17	8.30	2.9
							23.9	7.49	108.7	1.01	35.17	8.30	3.2
						6.42	23.8	7.42	107.5	0.99	35.16	8.29	4.2
							23.7	7.36	106.5	1.00	35.16	8.29	4.8
						11.84	23.6	7.08	102.4	2.45	35.30	8.28	6.2
							23.6	7.03	101.6	3.21	35.35	8.28	5.7
13:12	CC3	MF	0	0	10.06	1.00	23.9	7.49	108.5	0.69	35.00	8.29	9.6
							23.9	7.56	109.4	0.65	35.01	8.29	9.9
						5.03	23.8	7.21	104.3	0.75	35.09	8.28	8.5
							23.7	7.17	103.7	0.80	35.10	8.28	8.4
						9.06	23.7	6.55	94.8	2.70	35.21	8.27	7.8
							23.7	6.45	93.3	2.23	35.28	8.26	7.4
12:37	CC4	MF	0	0	2.32								
						1.16	23.8	7.21	103.7	1.16	35.12	8.30	4.9
							23.8	7.21	103.7	1.32	35.12	8.30	4.2
12:56	CC13	MF	0	0	8.88	1.00	23.8	7.44	107.7	0.86	35.16	8.29	3.9
							23.8	7.46	108.1	0.87	35.16	8.29	3.4
						4.44	23.7	7.20	104.1	1.14	35.17	8.28	6.3
							23.7	7.22	104.3	1.15	35.17	8.28	6.1
						7.88	23.7	7.16	103.5	1.83	35.20	8.27	7.2
							23.7	7.10	102.6	2.22	35.22	8.27	7.1
12:34	SWI1	MF	0	0	4.29	1.00	23.9	7.31	105.9	1.01	35.12	8.29	4.9
							23.8	7.32	105.9	1.12	35.13	8.29	4.7
						3.29	23.9	7.30	105.8	1.31	35.12	8.29	4.2
							23.8	7.31	105.8	1.42	35.13	8.29	4.9
12:45	C3	MF	0	0	14.18	1.00	23.8	7.55	109.4	0.79	35.19	8.31	5.9
							23.8	7.57	109.6	0.79	35.19	8.31	5.8
						7.09	23.7	7.43	107.4	1.00	35.26	8.30	6.4
							23.7	7.39	106.8	1.02	35.28	8.29	6.5
						13.18	23.6	7.28	105.2	1.44	35.32	8.29	7.1
							23.6	7.21	104.1	1.65	35.34	8.29	7.4
12:41	C4	MF	0	0	14.27	1.00	23.8	7.42	107.5	1.20	35.23	8.30	4.6
							23.8	7.43	107.6	1.23	35.23	8.30	4.2
						7.14	23.7	7.24	104.7	1.18	35.33	8.29	6.5
							23.7	7.23	104.5	1.19	35.33	8.29	6.3
						13.27	23.6	7.17	103.5	2.00	35.38	8.28	7
							23.6	7.12	102.9	2.53	35.42	8.28	6.7
13:00	I1	MF	0	0	9.75	1.00	23.9	7.57	109.7	0.70	35.09	8.30	4.9
							23.9	7.57	109.8	0.72	35.09	8.29	5.3
						4.88	23.8	7.18	104.0	0.87	35.12	8.29	6
							23.7	7.15	103.4	0.95	35.16	8.28	5.8
						8.75	23.7	6.43	93.0	4.08	35.30	8.27	7.7
							23.7	6.39	92.4	5.07	35.34	8.26	7.3

Remarks: MF - Middle Flood tide
ME - Middle Ebb tide

Contract No. EDO/04/2018
Cross Bay Link, Tseung Kwan O

Impact Water Quality Monitoring Result													
Sampling Date:	**18/11/2019**												
Date / Time	**Location**	**Tide***	**Co-ordinates**		**Water Depth**	**Sampling Depth**	**Temp**	**DO Conc**	**DO Saturation**	**Turbidity**	**Salinity**	**pH**	**SS**
			East	**North**	**m**	**m**	**℃**	**mg/L**	**%**	**NTU**	**ppt**	**unit**	**mg/L**
14:41	CC1	ME	0	0	9.1	1.00	23.9	7.25	105.2	0.69	35.10	8.25	5.4
							23.9	7.24	105.0	0.68	35.10	8.24	5.1
						4.55	23.8	7.13	103.2	0.90	35.13	8.24	4.8
							23.8	7.09	102.6	0.96	35.15	8.24	4.5
						8.10	23.8	7.04	101.9	1.05	35.15	8.24	3.8
							23.7	7.04	101.7	2.37	35.27	8.27	4.2
14:45	CC2	ME	0	0	12.31	1.00	24.3	7.68	112.1	0.38	35.05	8.27	5.1
							24.3	7.69	112.2	0.36	35.05	8.27	5
						6.16	24.1	7.31	106.3	0.52	35.08	8.28	5.7
							23.9	7.29	105.8	0.61	35.10	8.28	5.9
						11.31	23.7	6.72	97.1	3.93	35.25	8.26	8.5
							23.7	6.69	96.8	4.90	35.28	8.26	8
15:00	CC3	ME	0	0	9.68	1.00	24.6	7.30	107.1	0.50	34.91	8.23	2.8
							24.6	7.31	107.2	0.50	34.94	8.24	3.3
						4.84	24.3	7.34	107.0	1.56	35.05	8.25	4.9
							24.1	7.37	107.3	1.57	35.09	8.25	4.6
						8.68	23.9	7.50	108.8	2.69	35.14	8.26	5.2
							23.8	6.59	95.6	2.57	35.19	8.25	5.1
14:30	CC4	ME	0	0	2.09								
						1.05	24.1	7.17	104.2	1.50	35.06	8.18	3.6
							24.0	7.17	104.3	1.62	35.10	8.19	4.1
14:49	CC13	ME	0	0	8.64								
						1.00	24.3	7.50	109.4	0.49	35.04	8.27	4.8
							24.3	7.52	109.7	0.50	35.03	8.27	4.2
						4.32	24.0	7.49	108.9	0.59	35.07	8.27	4.8
							23.9	7.46	108.2	0.67	35.09	8.27	5.3
						7.64	23.7	6.68	96.6	2.72	35.29	8.25	5
							23.7	6.66	96.2	2.64	35.29	8.25	5.2
14:24	SWI1	ME	0	0	4.1	1.00	24.4	7.33	107.1	0.53	34.97	8.02	3.9
							24.3	7.37	107.6	0.61	34.97	8.04	3.7
						3.10	24.0	7.36	106.9	1.05	35.00	8.15	4.5
							24.0	7.36	106.8	1.26	35.00	8.15	4.4
14:37	C3	ME	0	0	16.2	1.00	24.0	7.45	108.1	0.49	34.99	8.24	5.2
							24.0	7.45	108.1	0.44	34.99	8.24	5
						8.10	23.9	7.39	107.1	0.52	35.07	8.24	5.3
							23.8	7.35	106.4	0.56	35.11	8.24	4.9
						15.20	23.7	7.11	102.8	1.37	35.27	8.24	3.4
							23.7	7.04	101.7	1.72	35.29	8.24	3.3
14:33	C4	ME	0	0	15.76	1.00	24.4	7.36	107.6	0.47	34.94	8.20	5.3
							24.4	7.39	107.9	0.46	34.94	8.20	5.1
						7.88	23.7	7.04	101.8	1.76	35.29	8.22	6
							23.6	7.04	101.7	2.14	35.34	8.22	5.7
						14.76	23.6	7.00	101.1	3.58	35.39	8.22	6.4
							23.6	6.99	100.9	4.03	35.40	8.22	5.9
14:53	I1	ME	0	0	10.11	1.00	24.5	7.64	111.8	0.36	34.95	8.27	3.1
							24.5	7.65	111.9	0.39	34.95	8.27	3.7
						5.06	24.3	7.64	111.4	0.53	35.02	8.27	5
							24.1	7.62	110.9	0.61	35.06	8.27	5.1
						9.11	23.9	6.74	97.8	1.20	35.20	8.27	6.5
							23.8	6.39	92.5	1.59	35.24	8.27	6.5
11:53	CC1	MF	0	0	8.58	1.00	24.2	7.35	107.1	0.45	35.03	8.27	5.8
							24.2	7.36	107.2	0.47	35.03	8.27	5.7
						4.29	24.0	7.39	107.3	0.61	35.11	8.27	8.2
							24.0	7.38	107.1	0.61	35.12	8.27	7.8
						7.58	23.8	7.28	105.5	0.89	35.15	8.27	9.5
							23.8	7.24	104.9	0.94	35.16	8.27	9.1
11:58	CC2	MF	0	0	11.89	1.00	24.2	7.29	106.1	0.56	35.00	8.27	7.7
							24.1	7.29	105.9	0.58	35.02	8.27	8
						5.95	23.8	7.33	106.0	0.79	35.10	8.27	7.6
							23.8	7.32	105.8	0.80	35.10	8.27	7.7
						10.89	23.8	7.26	105.2	0.69	35.17	8.27	8.2
							23.8	7.25	105.1	0.66	35.17	8.27	8.8
12:13	CC3	MF	0	0	9.87	1.00	24.6	7.04	102.9	0.28	34.63	8.24	2.7
							24.6	7.04	102.6	0.34	34.61	8.24	3.1
						4.94	24.0	7.26	105.5	0.61	35.14	8.25	4.2
							23.9	7.31	106.1	0.65	35.15	8.25	4.5
						8.87	23.7	6.05	87.5	3.07	35.29	8.25	6.4
							23.7	6.01	86.9	3.80	35.31	8.25	6.2
11:42	CC4	MF	0	0	2.39								
						1.20	24.2	7.08	103.1	1.89	34.95	8.25	4.5
							24.1	7.09	103.1	2.42	34.96	8.25	4.3
12:03	CC13	MF	0	0	8.43								
						1.00	24.3	7.25	105.7	0.55	34.98	8.27	7.5
							24.3	7.26	105.9	0.53	34.98	8.27	7.9
						4.22	24.0	7.26	105.5	0.66	35.03	8.27	7.3
							23.9	7.25	105.1	0.72	35.05	8.27	7.6
						7.43	23.8	7.24	104.7	0.79	35.12	8.27	6.5
							23.8	7.26	104.9	0.80	35.12	8.27	6.2
11:36	SWI1	MF	0	0	4.16	1.00	24.3	7.31	106.6	0.36	34.91	8.26	7.2
							24.3	7.32	106.7	0.36	34.91	8.26	7.6
						3.16	24.1	7.35	106.9	0.43	34.92	8.26	8.3
							24.1	7.36	107.0	0.47	34.92	8.26	8.5
11:50	C3	MF	0	0	16.05	1.00	24.0	7.21	104.7	0.55	35.02	8.25	5.6
							23.9	7.21	104.6	0.55	35.04	8.25	6
						8.03	23.7	7.12	103.0	1.00	35.24	8.26	4.8
							23.7	7.09	102.4	1.06	35.27	8.26	4.2
						15.05	23.6	6.94	100.3	2.31	35.32	8.26	4.9
							23.6	6.91	99.8	2.63	35.33	8.26	4.6
11:46	C4	MF	0	0	15.24	1.00	24.0	7.25	105.3	0.53	35.02	8.25	3.6
							24.0	7.26	105.4	0.54	35.02	8.25	3.5
						7.62	23.6	7.04	101.8	1.12	35.37	8.26	3.5
							23.6	7.01	101.4	1.23	35.38	8.26	3.9
						14.24	23.6	6.96	100.5	2.18	35.40	8.26	3.2
							23.6	6.93	100.1	2.57	35.41	8.26	3.6
12:06	I1	MF	0	0	9.41	1.00	24.2	7.35	107.1	0.51	35.01	8.27	5.5
							24.2	7.36	107.3	0.49	35.01	8.27	5.1
						4.71	24.0	7.46	108.3	0.55	35.04	8.27	5.9
							24.0	7.51	109.0	0.58	35.06	8.27	5.7
						8.41	23.8	6.52	94.4	1.95	35.16	8.27	6.3
							23.8	6.38	92.5	2.87	35.22	8.27	6

Remarks: MF - Middle Flood tide
ME - Middle Ebb tide

Contract No. EDO/04/2018
Cross Bay Link, Tseung Kwan O

Impact Water Quality Monitoring Result													
Sampling Date:	**20-Nov-19**												
Date / Time	**Location**	**Tide***	**Co-ordinates**		**Water Depth**	**Sampling Depth**	**Temp**	**DO Conc**	**DO Saturation**	**Turbidity**	**Salinity**	**pH**	**SS**
			East	**North**	**m**	**m**	**℃**	**mg/L**	**%**	**NTU**	**ppt**	**unit**	**mg/L**
16:48	CC1	ME	0	0	9.52	1.00	23.6	6.78	97.8	0.65	35.26	8.32	6.2
							23.6	6.79	97.9	0.70	35.26	8.32	6.3
						4.76	23.6	6.80	98.1	0.89	35.27	8.31	5.8
							23.5	6.79	98.0	0.97	35.28	8.31	5.5
						8.52	23.5	6.76	97.5	1.14	35.29	8.31	4.2
							23.5	6.73	97.1	1.31	35.30	8.31	4.8
16:52	CC2	ME	0	0	11.97	1.00	23.5	6.71	96.5	1.09	35.21	8.32	4
							23.5	6.70	96.5	1.06	35.21	8.32	4.7
						5.99	23.3	6.53	93.8	1.27	35.28	8.31	5.8
							23.3	6.50	93.3	1.29	35.28	8.31	5.7
						10.97	23.3	6.53	93.7	1.49	35.36	8.3	6.5
							23.3	6.53	93.8	1.48	35.37	8.3	6.1
17:12	CC3	ME	0	0	9.77	1.00	23.7	6.49	93.8	1.23	35.30	8.29	5.1
							23.6	6.50	94.0	1.27	35.31	8.29	5.3
						4.89	23.4	6.52	93.9	1.48	35.33	8.29	5.1
							23.4	6.51	93.7	1.58	35.34	8.29	4.6
						8.77	23.3	6.38	91.7	3.14	35.38	8.29	4.2
							23.3	6.31	90.7	4.07	35.39	8.29	4.4
16:38	CC4	ME	0	0	2.31								
						1.16	23.5	6.51	93.8	2.19	35.26	8.29	6.4
							23.5	6.50	93.6	2.26	35.26	8.29	6
16:56	CC13	ME	0	0	8.4								
						1.00	23.5	6.60	95.1	1.41	35.23	8.32	4.7
							23.5	6.59	95.0	1.36	35.23	8.31	5.2
						4.20	23.4	6.62	95.3	1.06	35.28	8.31	5.7
							23.4	6.64	95.6	0.99	35.29	8.31	6.1
						7.40	23.3	6.60	94.9	1.46	35.33	8.31	6.6
							23.3	6.55	94.2	1.66	35.34	8.31	6.7
16:32	SWI1	ME	0	0	4.52	1.00	23.4	6.13	88.4	2.29	35.36	8.24	11.4
							23.4	6.17	88.9	2.09	35.37	8.25	12.2
						3.52	23.4	6.20	89.2	3.96	35.37	8.26	13.5
							23.4	6.21	89.3	3.80	35.38	8.26	14
16:45	C3	ME	0	0	15.21	1.00	23.5	6.71	96.8	0.72	35.26	8.32	6
							23.5	6.70	96.6	0.73	35.27	8.32	5.7
						7.61	23.4	6.42	92.4	2.93	35.43	8.31	5.3
							23.4	6.38	91.8	3.22	35.44	8.30	5.6
						14.21	23.4	6.29	90.5	5.45	35.44	8.30	5
							23.4	6.29	90.5	5.33	35.44	8.29	5.2
16:41	C4	ME	0	0	15.83	1.00	23.6	6.73	97.1	0.65	35.26	8.31	3.2
							23.6	6.74	97.2	0.65	35.27	8.31	2.8
						7.92	23.4	6.59	94.9	0.86	35.40	8.31	4.1
							23.4	6.58	94.6	0.93	35.42	8.31	4.4
						14.83	23.3	6.43	92.5	3.23	35.53	8.31	7.5
							23.3	6.42	92.4	3.55	35.53	8.31	7.3
17:00	I1	ME	0	0	10.13	1.00	23.5	6.59	95.1	1.44	35.32	8.31	7.2
							23.5	6.60	95.1	1.43	35.32	8.31	7.2
						5.07	23.3	6.52	93.7	1.81	35.32	8.30	7.2
							23.2	6.40	91.9	2.16	35.34	8.30	7.7
						9.13	23.3	6.36	91.4	3.13	35.36	8.29	7.6
							23.3	6.31	90.7	4.08	35.38	8.29	7.9
13:51	CC1	MF	0	0	10.36	1.00	23.5	6.76	97.5	0.92	35.32	8.31	6.4
							23.5	6.77	97.5	0.94	35.32	8.31	6.8
						5.18	23.5	6.75	97.3	1.04	35.33	8.31	5.6
							23.5	6.74	97.2	1.07	35.33	8.31	5.9
						9.36	23.4	6.67	96.0	1.71	35.34	8.30	5
							23.4	6.62	95.2	1.94	35.35	8.30	5.4
13:57	CC2	MF	0	0	12.29	1.00	23.5	6.6	95.1	1.12	35.20	8.31	7
							23.5	6.6	95.1	1.12	35.20	8.31	7
						6.15	23.3	6.6	94.8	1.11	35.31	8.30	7.4
							23.3	6.57	94.4	1.15	35.32	8.30	7.3
						11.29	23.3	6.51	93.5	1.90	35.37	8.30	8.8
							23.3	6.49	93.2	2.30	35.39	8.30	8.8
14:16	CC3	MF	0	0	10.12	1.00	23.6	6.48	93.6	1.26	35.26	8.29	11
							23.6	6.52	94.2	1.35	35.28	8.29	10.5
						5.06	23.4	6.55	94.3	1.33	35.33	8.29	8
							23.3	6.56	94.3	1.37	35.34	8.29	8.1
						9.12	23.3	6.16	88.5	4.69	35.39	8.29	6.6
							23.3	6.13	88.0	5.90	35.40	8.29	6.2
13:41	CC4	MF	0	0	2.2								
						1.10	23.5	6.62	95.4	1.09	35.25	8.30	7.1
							23.5	6.60	95.1	1.12	35.25	8.30	6.3
14:01	CC13	MF	0	0	8.19								
						1.00	23.5	6.49	93.5	1.29	35.18	8.30	3.4
							23.5	6.49	93.5	1.32	35.19	8.30	3.7
						4.10	23.3	6.50	93.3	1.45	35.29	8.29	5.3
							23.3	6.50	93.3	1.42	35.29	8.29	4.8
						7.19	23.3	6.49	93.3	1.39	35.30	8.29	7.3
							23.3	6.49	93.2	1.38	35.30	8.30	8.1
13:34	SWI1	MF	0	0	4.12	1.00	23.4	6.27	90.2	3.38	35.33	8.34	12.2
							23.4	6.30	90.6	3.40	35.34	8.33	12.4
						3.12	23.3	5.95	85.5	3.35	35.39	8.27	11
							23.3	5.91	85.0	3.78	35.39	8.27	10.2
13:48	C3	MF	0	0	15.74	1.00	23.4	6.54	94.1	0.74	35.30	8.31	5.2
							23.4	6.53	94.1	0.79	35.30	8.31	5
						7.87	23.4	6.34	91.3	3.90	35.46	8.29	5.8
							23.4	6.33	91.1	4.18	35.46	8.29	5.5
						14.74	23.4	6.30	90.6	4.37	35.45	8.29	6.3
							23.4	6.29	90.6	4.23	35.45	8.29	6.5
13:44	C4	MF	0	0	15.08	1.00	23.5	6.65	95.9	1.98	35.24	8.32	6.6
							23.6	6.66	96.0	1.58	35.24	8.32	6.8
						7.54	23.3	6.51	93.6	0.65	35.41	8.30	7.2
							23.3	6.51	93.6	0.67	35.41	8.30	7.8
						14.08	23.4	6.40	92.2	4.51	35.55	8.30	8.4
							23.4	6.37	91.7	5.42	35.56	8.30	8.2
14:04	I1	MF	0	0	10.23	1.00	23.6	6.56	94.7	1.29	35.31	8.29	7.6
							23.6	6.56	94.7	1.31	35.31	8.29	6.9
						5.12	23.4	6.47	93.2	1.62	35.31	8.29	5.3
							23.3	6.42	92.3	1.79	35.32	8.29	5.3
						9.23	23.2	6.29	90.4	3.39	35.39	8.29	4.9
							23.3	6.26	89.9	3.90	35.40	8.29	5.3

Remarks: MF - Middle Flood tide
ME - Middle Ebb tide

Contract No. EDO/04/2018
Cross Bay Link, Tseung Kwan O

Impact Water Quality Monitoring Result

Sampling Date: 22-Nov-19

Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/L
9:28	CC1	ME	0	0	9.04	1.00	23.4	6.83	98.4	1.13	35.44	8.32	3.1
							23.4	6.80	97.9	1.19	35.44	8.31	2.7
						4.52	23.4	6.79	97.7	1.25	35.44	8.31	3
							23.4	6.80	97.8	1.21	35.44	8.31	2.7
						8.04	23.3	6.79	97.7	1.28	35.44	8.31	2.9
							23.3	6.76	97.3	1.21	35.45	8.31	3.2
9:32	CC2	ME	0	0	12	1.00	23.4	6.87	98.9	1.64	35.39	8.32	2.2
							23.4	6.88	99.0	1.03	35.39	8.32	2.1
						6.00	23.2	6.84	98.2	0.95	35.44	8.32	2.3
							23.2	6.75	96.8	0.89	35.46	8.31	2.1
						11.00	23.2	6.43	92.2	1.86	35.49	8.3	2.2
							23.2	6.37	91.5	2.95	35.53	8.3	2.4
9:52	CC3	ME	0	0	9.55	1.00	23.6	6.30	91.0	1.48	35.12	8.27	1.8
							23.6	6.34	91.5	0.97	35.16	8.27	1.8
						4.78	23.5	6.09	87.8	1.40	35.40	8.27	1.6
							23.4	5.98	86.1	1.66	35.46	8.27	1.7
						8.55	23.3	6.21	89.4	2.72	35.51	8.27	3.3
							23.3	6.21	89.3	3.17	35.51	8.27	3.2
9:11	CC4	ME	0	0	2.43								
						1.22	23.5	6.70	96.5	1.51	35.30	8.29	4
							23.4	6.67	96.0	1.45	35.30	8.29	3.7
9:36	CC13	ME	0	0	8.59	1.00	23.4	6.73	96.8	1.52	35.34	8.32	1.6
							23.3	6.80	97.7	1.04	35.41	8.31	1.6
						4.30	23.2	6.40	91.9	2.32	35.50	8.30	1.7
							23.6	6.39	92.2	2.35	35.26	8.30	1.6
						7.59	23.4	6.60	95.0	2.44	35.39	8.29	1.8
							23.3	6.63	95.3	2.58	35.41	8.29	1.9
9:05	SWI1	ME	0	0	4.67	1.00	23.7	6.20	89.7	1.54	35.32	8.19	2.5
							23.7	6.19	89.5	1.51	35.32	8.20	2.7
						3.67	23.4	5.82	83.9	1.83	35.39	8.21	2.8
							23.4	5.83	83.9	1.93	35.40	8.21	3.1
9:17	C3	ME	0	0	14.5	1.00	23.3	6.50	93.5	1.12	35.30	8.29	3.2
							23.3	6.49	93.2	1.17	35.30	8.29	2.7
						7.25	23.2	6.39	91.7	1.53	35.34	8.28	2.6
							23.2	6.36	91.3	1.57	35.35	8.28	2.9
						13.50	23.2	6.38	91.6	2.37	35.42	8.28	3
							23.2	6.42	92.1	2.63	35.44	8.28	2.7
9:14	C4	ME	0	0	14.71	1.00	23.4	6.44	92.6	1.19	35.30	8.28	1.9
							23.3	6.42	92.3	1.23	35.30	8.28	1.7
						7.36	23.2	6.32	90.8	1.37	35.32	8.28	1.9
							23.2	6.31	90.5	1.38	35.32	8.28	1.7
						13.71	23.2	6.30	90.4	1.86	35.38	8.28	2.9
							23.2	6.33	90.8	2.08	35.40	8.28	3.1
9:40	I1	ME	0	0	9.26	1.00	23.3	6.45	92.7	2.07	35.43	8.29	1.2
							23.4	6.39	92.0	1.62	35.40	8.28	1.5
						4.63	23.4	6.43	92.5	1.76	35.40	8.29	2.5
							23.3	6.45	92.7	1.91	35.42	8.29	3
						8.26	23.3	6.39	91.9	4.34	35.50	8.28	2.8
							23.2	6.32	90.8	5.27	35.51	8.28	2.7
14:07	CC1	MF	0	0	9.39	1.00	23.4	6.67	96.0	1.04	35.40	8.31	2.2
							23.4	6.66	95.9	1.06	35.40	8.30	2.3
						4.70	23.4	6.66	95.9	1.15	35.41	8.30	2.3
							23.4	6.66	96.0	1.25	35.41	8.30	2.1
						8.39	23.4	6.67	96.1	1.46	35.42	8.30	2.3
							23.4	6.67	96.1	1.46	35.42	8.30	2.4
14:12	CC2	MF	0	0	11.33	1.00	23.5	6.82	98.3	0.96	35.31	8.32	2.1
							23.5	6.84	98.6	0.94	35.32	8.32	2.3
						5.67	23.4	6.87	98.9	0.98	35.38	8.32	2.5
							23.3	6.89	99.1	1.06	35.41	8.32	2.3
						10.33	23.2	6.41	92.1	5.84	35.51	8.30	1.9
							23.2	6.41	92.0	6.18	35.51	8.30	1.7
14:26	CC3	MF	0	0	9.23	1.00	23.8	6.32	91.5	5.13	34.99	8.27	1.3
							23.6	6.44	93.0	1.06	35.34	8.27	1.2
						4.62	23.5	6.57	94.7	1.08	35.39	8.28	1.6
							23.4	6.62	95.5	1.12	35.41	8.28	1.8
						8.23	23.3	6.30	90.6	2.09	35.47	8.29	2.2
							23.3	6.27	90.1	2.25	35.49	8.29	2.5
13:54	CC4	MF	0	0	2.2								
						1.10	23.4	6.67	95.9	1.79	35.30	8.33	2.8
							23.4	6.63	95.4	1.74	35.29	8.33	3
14:16	CC13	MF	0	0	8.08	1.00	23.5	6.70	96.7	1.61	35.44	8.31	2.4
							23.6	6.72	97.1	1.29	35.34	8.30	2.3
						4.04	23.4	6.74	97.1	1.15	35.37	8.30	2.9
							23.4	6.76	97.3	1.16	35.38	8.30	2.6
						7.08	23.3	6.73	96.7	1.52	35.40	8.30	2.7
							23.3	6.49	93.2	1.75	35.43	8.30	3
13:42	SWI1	MF	0	0	4.34	1.00	23.7	6.53	94.5	1.19	35.32	8.29	2.2
							23.8	6.52	94.4	1.19	35.33	8.29	2.4
						3.34	23.4	6.17	88.8	1.72	35.43	8.28	3.7
							23.3	6.18	88.9	1.73	35.42	8.27	3.5
14:02	C3	MF	0	0	14.37	1.00	23.3	6.74	97.0	1.36	35.42	8.32	2.8
							23.3	6.74	96.9	1.35	35.42	8.32	2.6
						7.19	23.3	6.64	95.4	3.77	35.44	8.31	2.8
							23.3	6.61	95.0	3.76	35.44	8.31	2.6
						13.37	23.2	6.48	93.0	3.46	35.36	8.29	2.8
							23.2	6.48	92.9	3.75	35.40	8.29	2.5
13:54	C4	MF	0	0	14.33	1.00	23.4	6.60	95.0	1.27	35.30	8.30	2.4
							23.4	6.61	95.1	1.30	35.30	8.30	2.1
						7.17	23.2	6.29	90.3	1.73	35.34	8.29	2.6
							23.2	6.28	90.1	1.73	35.34	8.29	2.7
						13.33	23.2	6.31	90.6	1.83	35.39	8.29	2.8
							23.2	6.34	91.0	2.12	35.41	8.29	3.1
14:19	I1	MF	0	0	10.14	1.00	23.5	6.50	93.7	1.47	35.34	8.30	2.1
							23.5	6.52	93.9	1.50	35.36	8.30	2.6
						5.07	23.4	6.60	95.0	1.64	35.41	8.30	2.5
							23.3	6.55	94.1	1.88	35.46	8.30	2.2
						9.14	23.3	6.47	93.0	2.47	35.47	8.30	2.7
							23.3	6.43	92.4	2.97	35.48	8.29	2.3

Remarks: MF - Middle Flood tide
ME - Middle Ebb tide

Contract No. EDO/04/2018
Cross Bay Link, Tseung Kwan O

Impact Water Quality Monitoring Result

Sampling Date: 25-Nov-19

Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/L
15:42	CC1	ME	0	0	9.26	1.00	23.6	6.67	96.2	1.07	35.33	8.26	2.8
							23.6	6.67	96.3	1.07	35.33	8.26	2.4
						4.63	23.6	6.65	96.0	1.02	35.34	8.26	2.3
							23.6	6.65	96.0	1.01	35.34	8.26	2.4
						8.26	23.5	6.61	95.4	1.11	35.33	8.26	2.9
							23.5	6.59	95.0	1.20	35.33	8.26	2.7
15:49	CC2	ME	0	0	12.33	1.00	23.6	6.74	97.4	1.09	35.30	8.29	3.6
							23.6	6.74	97.4	1.11	35.30	8.28	2.7
						6.17	23.4	6.54	94.0	1.02	35.35	8.27	3.6
							23.3	6.51	93.6	0.97	35.35	8.27	2.6
						11.33	23.2	6.14	88.1	2.29	35.42	8.26	3.5
							23.2	6.16	88.4	2.58	35.44	8.26	4.3
16:11	CC3	ME	0	0	9.67	1.00	23.7	6.84	98.9	0.70	35.18	8.27	3.1
							23.7	6.83	98.9	0.69	35.18	8.27	3.3
						4.84	23.6	6.47	93.4	0.92	35.27	8.27	1.7
							23.5	6.45	93.0	1.10	35.31	8.27	1.4
						8.67	23.4	5.54	79.7	3.03	35.41	8.26	1.8
							23.3	5.50	79.1	3.75	35.44	8.25	1.9
15:30	CC4	ME	0	0	2.24								
						1.12	23.5	6.61	95.4	2.13	35.40	8.26	4
							23.5	6.60	95.2	2.25	35.39	8.26	5
15:54	CC13	ME	0	0	8.17								
						1.00	23.6	6.69	96.6	1.14	35.32	8.28	2.4
							23.6	6.69	96.6	1.13	35.32	8.27	3.3
						4.09	23.6	6.67	96.2	1.16	35.33	8.27	3.6
							23.6	6.67	96.3	1.15	35.33	8.27	4
						7.17	23.3	6.53	93.8	1.00	35.35	8.27	3.5
							23.3	6.48	93.1	0.94	35.37	8.27	2.8
15:23	SWI1	ME	0	0	4.6	1.00	23.3	6.16	88.6	1.94	35.30	8.26	6
							23.3	6.13	88.1	1.17	35.29	8.25	5.7
						3.60	23.3	6.00	86.1	2.66	35.38	8.25	6.3
							23.2	5.94	85.3	2.20	35.40	8.24	5.3
15:37	C3	ME	0	0	13.66	1.00	23.4	6.23	89.7	1.50	35.27	8.24	3.2
							23.4	6.21	89.3	1.56	35.27	8.24	2.7
						6.83	23.3	6.12	87.9	1.73	35.30	8.24	3.2
							23.3	6.10	87.7	1.70	35.31	8.23	3.9
						12.66	23.2	6.10	87.5	2.02	35.35	8.23	3.5
							23.2	6.10	87.5	2.05	35.36	8.23	2.5
15:33	C4	ME	0	0	13.87	1.00	23.4	6.37	91.7	3.20	35.26	8.25	2.7
							23.4	6.29	90.5	1.42	35.25	8.25	2.5
						6.94	23.3	6.16	88.5	1.58	35.27	8.24	3
							23.3	6.14	88.1	1.64	35.29	8.24	2.9
						12.87	23.2	6.14	88.1	2.29	35.36	8.24	2.1
							23.2	6.16	88.4	2.41	35.39	8.24	2.8
15:57	I1	ME	0	0	9	1.00	23.6	6.66	96.1	1.41	35.32	8.28	2.9
							23.6	6.65	96.1	1.40	35.32	8.28	2.6
						4.50	23.6	6.61	95.4	1.41	35.33	8.27	2.1
							23.6	6.59	95.1	1.37	35.34	8.27	2.3
						8.00	23.4	6.27	90.3	1.99	35.38	8.26	2
							23.3	6.27	90.1	2.16	35.41	8.26	2.1
11:58	CC1	MF	0	0	8.58	1.00	23.6	6.63	95.7	0.99	35.33	8.26	2.2
							23.6	6.61	95.5	0.99	35.33	8.26	3
						4.29	23.6	6.61	95.5	1.01	35.33	8.25	2.4
							23.6	6.61	95.5	0.96	35.33	8.25	2.6
						7.58	23.4	6.52	93.9	1.38	35.33	8.25	4
							23.4	6.49	93.5	1.39	35.34	8.25	3.5
12:05	CC2	MF	0	0	12.59	1.00	23.5	6.64	95.7	1.66	35.31	8.29	2.6
							23.5	6.63	95.5	1.01	35.32	8.28	2.2
						6.30	23.4	6.57	94.6	1.10	35.34	8.27	2.8
							23.4	6.55	94.3	1.07	35.34	8.27	2.3
						11.59	23.4	6.49	93.4	0.99	35.36	8.26	3.6
							23.3	6.48	93.2	0.98	35.36	8.26	3
12:23	CC3	MF	0	0	9.31	1.00	23.7	6.71	96.9	0.61	35.20	8.27	1.1
							23.7	6.71	97.0	0.62	35.20	8.27	2
						4.66	23.4	6.42	92.4	1.52	35.42	8.26	1.2
							23.4	6.41	92.2	1.51	35.42	8.26	1.9
						8.31	23.3	5.39	77.5	4.14	35.43	8.25	1.2
							23.3	5.31	76.3	4.32	35.46	8.24	1.8
11:45	CC4	MF	0	0	2.34								
						1.17	23.3	6.48	93.1	1.83	35.39	8.27	7.3
							23.3	6.46	92.8	1.68	35.39	8.27	6.4
12:10	CC13	MF	0	0	8.41	1.00	23.6	6.65	96.1	1.04	35.30	8.28	3.3
							23.6	6.66	96.2	1.07	35.31	8.27	3.5
						4.21	23.5	6.63	95.7	1.11	35.31	8.27	2
							23.4	6.61	95.2	1.14	35.32	8.27	2.3
						7.41	23.3	6.47	93.0	1.04	35.37	8.26	1.8
							23.2	6.43	92.4	0.95	35.38	8.26	2.8
11:39	SWI1	MF	0	0	4.51	1.00	23.3	6.11	87.7	2.08	35.32	8.31	7.6
							23.3	6.14	88.2	2.35	35.31	8.27	7.6
						3.51	23.2	5.93	85.1	3.26	35.39	8.24	5.1
							23.2	5.87	84.3	3.85	35.40	8.23	5.9
11:54	C3	MF	0	0	14	1.00	23.3	6.17	88.7	1.81	35.29	8.24	4.4
							23.3	6.15	88.5	1.77	35.29	8.24	3.5
						7.00	23.3	6.12	87.9	2.09	35.31	8.23	3.2
							23.3	6.11	87.8	2.13	35.33	8.23	4.2
						13.00	23.2	6.11	87.6	2.23	35.36	8.23	2.8
							23.2	6.10	87.6	1.96	35.37	8.23	3.5
11:49	C4	MF	0	0	13.82	1.00	23.0	6.28	89.9	3.85	35.54	8.27	2.1
							23.2	6.24	89.5	3.76	35.38	8.26	2.8
						6.91	23.3	6.12	87.9	1.76	35.34	8.24	2.7
							23.3	6.12	87.9	1.90	35.34	8.23	2
						12.82	23.3	6.12	87.8	1.95	35.35	8.23	3.9
							23.3	6.12	87.8	1.85	35.35	8.23	4.3
12:14	I1	MF	0	0	9.2	1.00	23.6	6.60	95.4	3.09	35.32	8.27	2.5
							23.6	6.59	95.3	3.88	35.32	8.26	3
						4.60	23.5	6.49	93.7	1.54	35.35	8.26	3.3
							23.5	6.43	92.7	1.53	35.35	8.26	2.7
						8.20	23.1	6.26	89.7	2.69	35.48	8.25	3.2
							23.1	6.25	89.5	2.98	35.49	8.25	2.7

Remarks: MF - Middle Flood tide
ME - Middle Ebb tide

Contract No. EDO/04/2018
Cross Bay Link, Tseung Kwan O

Impact Water Quality Monitoring Result

Sampling Date: 27-Nov-19

Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/L
13:52	CC1	ME	0	0	9.2	1.00	23.2	6.61	94.7	1.34	35.35	8.27	2.8
							23.2	6.61	94.7	1.33	35.35	8.26	3.7
						4.60	23.1	6.60	94.5	1.50	35.35	8.26	3.1
							23.1	6.60	94.5	1.53	35.36	8.26	2.4
						8.20	23.0	6.57	93.9	1.75	35.39	8.26	2.2
							23.0	6.54	93.5	1.89	35.40	8.26	3.1
13:57	CC2	ME	0	0	12.45	1.00	23.1	6.47	92.6	1.73	35.33	8.26	1.6
							23.1	6.47	92.6	1.73	35.33	8.26	2.6
						6.23	23.0	6.42	91.8	1.91	35.34	8.25	2.7
							23.0	6.41	91.8	1.92	35.34	8.25	2.8
						11.45	22.9	6.36	90.8	2.62	35.41	8.25	2.6
							22.9	6.35	90.7	2.74	35.44	8.26	3.5
14:10	CC3	ME	0	0	9.52	1.00	23.3	6.44	92.4	1.31	35.18	8.27	2.7
							23.2	6.39	91.7	1.33	35.20	8.26	2
						4.76	23.1	6.30	90.2	1.67	35.29	8.26	2.9
							23.0	6.34	90.6	2.10	35.33	8.25	2
						8.52	23.0	6.14	87.8	2.53	35.33	8.24	2.7
							23.0	6.15	87.8	2.61	35.33	8.24	2.3
13:39	CC4	ME	0	0	2.23								
						1.12	22.9	6.47	92.5	2.88	35.42	8.37	4.6
							22.9	6.46	92.2	2.99	35.43	8.35	3.6
14:02	CC13	ME	0	0	8.85								
						1.00	23.1	6.61	94.5	1.63	35.35	8.31	3.2
							23.1	6.57	94.1	1.65	35.32	8.31	4.2
						4.43	23.0	6.41	91.6	1.89	35.35	8.28	3.5
							23.0	6.39	91.3	1.93	35.36	8.27	4.5
						7.85	23.0	6.38	91.2	1.97	35.37	8.27	4.9
							22.9	6.38	91.2	2.01	35.38	8.26	5
13:33	SWI1	ME	0	0	4.16	1.00	23.2	6.42	92.1	1.45	35.29	8.16	2
							23.2	6.47	92.8	1.47	35.30	8.16	2.7
						3.16	23.1	6.57	94.0	1.45	35.31	8.17	3.1
							23.0	6.56	93.9	1.43	35.31	8.17	3.6
13:48	C3	ME	0	0	15.4	1.00	23.0	6.43	91.9	2.31	35.38	8.32	3
							23.0	6.42	91.8	2.33	35.38	8.30	3.5
						7.70	22.9	6.37	90.9	2.52	35.40	8.27	5.6
							22.9	6.36	90.8	2.56	35.40	8.27	4.6
						14.40	22.9	6.34	90.5	2.70	35.40	8.26	5.6
							22.9	6.33	90.5	2.71	35.40	8.26	4.8
13:42	C4	ME	0	0	14.91	1.00	23.1	6.70	96.0	1.21	35.39	8.32	2.6
							23.1	6.70	95.9	1.37	35.40	8.31	1.6
						7.46	23.0	6.61	94.5	1.54	35.40	8.28	2.4
							23.0	6.60	94.4	1.56	35.40	8.27	3.3
						13.91	22.9	6.57	93.9	2.22	35.46	8.27	3.4
							22.9	6.57	93.9	2.20	35.46	8.27	2.4
14:06	I1	ME	0	0	9.95	1.00	23.1	6.41	91.9	2.12	35.33	8.26	3.5
							23.1	6.39	91.5	2.22	35.33	8.26	3.8
						4.98	23.0	6.33	90.5	2.60	35.33	8.25	3.3
							23.0	6.25	89.3	2.89	35.34	8.25	3
						8.95	22.9	6.30	90.0	4.04	35.46	8.25	4.1
							22.9	6.33	90.4	4.17	35.47	8.25	5.1
16:58	CC1	MF	0	0	10.22	1.00	23.2	6.6	94.6	1.64	35.33	8.29	4.5
							23.2	6.59	94.5	1.67	35.33	8.29	3.5
						5.11	23.2	6.58	94.3	1.78	35.33	8.28	3.4
							23.2	6.56	94.0	1.86	35.33	8.27	3.1
						9.22	23.2	6.55	93.8	1.95	35.34	8.27	2
							23.1	6.54	93.6	2.00	35.34	8.27	3
17:04	CC2	MF	0	0	12.08	1.00	23.1	6.58	94.1	1.50	35.31	8.29	3.8
							23.1	6.58	94.1	1.47	35.31	8.29	2.8
						6.04	23.0	6.53	93.5	1.51	35.36	8.28	2.9
							23.0	6.54	93.5	1.51	35.36	8.28	3.4
						11.08	22.9	6.48	92.5	2.39	35.44	8.28	2.1
							22.9	6.48	92.5	2.66	35.45	8.28	1.9
17:16	CC3	MF	0	0	10.18	1.00	23.3	6.43	92.4	1.35	35.18	8.28	2
							23.3	6.48	93.0	1.40	35.23	8.27	2.4
						5.09	23.1	6.48	92.8	1.71	35.31	8.27	2.3
							23.0	6.34	90.7	1.90	35.32	8.27	2
						9.18	23.0	5.63	80.5	3.78	35.36	8.26	2.1
							23.0	5.58	79.7	3.50	35.37	8.25	1.2
16:47	CC4	MF	0	0	2.44								
						1.22	23.0	6.65	95.1	1.82	35.42	8.30	4
							23.0	6.66	95.2	1.70	35.42	8.30	3.8
17:08	CC13	MF	0	0	8.33								
						1.00	23.1	6.56	94.0	1.85	35.34	8.28	3.9
							23.1	6.56	94.0	1.73	35.35	8.27	3.3
						4.17	23.1	6.57	94.0	1.70	35.36	8.27	3.6
							23.1	6.55	93.8	1.70	35.36	8.27	3
						7.33	23.1	6.56	93.9	1.58	35.36	8.27	7.1
							23.0	6.56	93.8	1.54	35.37	8.27	6.5
16:41	SWI1	MF	0	0	4.17	1.00	23.1	6.76	96.9	1.78	35.34	8.39	4
							23.1	6.72	96.2	1.75	35.34	8.37	3
						3.17	23.0	6.27	89.6	2.63	35.33	8.35	3.6
							23.0	6.22	88.8	3.47	35.34	8.34	4.5
16:54	C3	MF	0	0	15.55	1.00	23.0	6.51	93.0	1.88	35.33	8.31	4.1
							23.0	6.50	92.9	2.00	35.33	8.30	4.3
						7.78	23.0	6.44	92.0	2.16	35.35	8.29	3.5
							23.0	6.42	91.9	2.06	35.36	8.29	3.1
						14.55	23.0	6.35	90.7	3.80	35.38	8.28	3.4
							23.0	6.34	90.6	4.41	35.38	8.27	3.9
16:49	C4	MF	0	0	16.46	1.00	23.0	6.48	92.7	2.26	35.35	8.34	5.9
							23.0	6.47	92.5	2.28	35.35	8.33	4.9
						8.23	23.0	6.42	91.7	2.44	35.36	8.29	4.3
							23.0	6.41	91.7	2.33	35.36	8.29	4.8
						15.46	23.0	6.39	91.3	2.21	35.38	8.28	3.9
							23.0	6.39	91.3	2.41	35.38	8.28	4.7
17:12	I1	MF	0	0	10.08	1.00	23.2	6.47	92.8	1.75	35.29	8.30	2.4
							23.2	6.43	92.3	1.76	35.29	8.30	2.1
						5.04	23.2	6.40	91.7	1.93	35.32	8.28	3
							23.2	6.38	91.5	2.02	35.33	8.28	2.4
						9.08	23.1	6.36	91.1	2.37	35.37	8.27	2.5
							23.0	6.37	91.0	2.53	35.40	8.27	1.5

Remarks: MF - Middle Flood tide
ME - Middle Ebb tide

Contract No. EDO/04/2018
Cross Bay Link, Tseung Kwan O

Impact Water Quality Monitoring Result

Sampling Date: 29-Nov-19

Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/L
12:52	CC1	ME	0	0	9.87	1.00	22.5	6.84	97.0	2.07	35.45	8.31	7.9
							22.6	6.84	97.1	2.10	35.45	8.31	6.8
						4.94	22.4	6.71	95.0	2.27	35.47	8.31	7.2
							22.4	6.70	94.8	2.24	35.47	8.31	6.2
						8.87	22.4	6.66	94.3	2.44	35.48	8.3	3.8
							22.4	6.65	94.2	2.48	35.47	8.3	4.6
12:58	CC2	ME	0	0	12.44	1.00	22.6	6.82	96.8	1.67	35.36	8.29	5.2
							22.6	6.79	96.4	1.75	35.36	8.3	6
						6.22	22.6	6.67	94.7	2.11	35.36	8.3	6.1
							22.5	6.64	94.2	2.28	35.37	8.3	6.4
						11.44	22.5	6.57	93.1	3.49	35.42	8.3	5
							22.4	6.57	93.0	3.85	35.45	8.3	5.7
13:15	CC3	ME	0	0	10.23	1.00	22.7	6.78	96.5	1.68	35.30	8.30	5.8
							22.7	6.78	96.3	1.72	35.30	8.30	4.9
						5.12	22.5	6.43	91.1	2.27	35.31	8.30	6
							22.5	6.44	91.2	2.49	35.32	8.29	5.9
						9.23	22.4	6.07	85.9	4.25	35.33	8.29	7.2
							22.4	6.00	84.9	4.38	35.35	8.28	6.2
12:40	CC4	ME	0	0	1.9								
						0.95	22.6	6.63	94.2	2.78	35.41	8.30	12.3
							22.6	6.59	93.6	2.83	35.40	8.30	11
13:02	CC13	ME	0	0	8.33								
						1.00	22.8	6.87	97.8	1.63	35.34	8.29	3.6
							22.8	6.86	97.6	1.63	35.34	8.29	4.2
						4.17	22.7	6.80	96.6	2.00	35.34	8.30	3.4
							22.6	6.73	95.6	2.32	35.35	8.30	3.6
						7.33	22.5	6.58	93.2	3.13	35.38	8.30	3.3
							22.5	6.53	92.6	3.34	35.39	8.30	2.8
12:34	SWI1	ME	0	0	4.09	1.00	22.6	6.61	93.9	2.45	35.36	8.29	9.9
							22.6	6.61	93.9	2.49	35.36	8.29	9
						3.09	22.6	6.60	93.6	2.67	35.36	8.29	6.6
							22.6	6.60	93.7	2.71	35.35	8.29	5.9
12:48	C3	ME	0	0	15.91	1.00	22.7	6.81	96.8	1.84	35.39	8.31	4.7
							22.7	6.81	96.8	1.84	35.39	8.31	4.3
						7.96	22.5	6.85	97.2	1.61	35.42	8.31	4.4
							22.5	6.85	97.0	1.58	35.42	8.31	5
						14.91	22.4	6.69	94.6	2.73	35.48	8.31	4
							22.3	6.66	94.2	2.90	35.48	8.31	4.9
12:43	C4	ME	0	0	16.58	1.00	22.7	6.89	98.0	1.47	35.37	8.30	3.3
							22.7	6.89	98.0	1.51	35.37	8.30	3.5
						8.29	22.5	6.79	96.2	1.61	35.43	8.31	3.8
							22.5	6.77	95.9	1.59	35.43	8.31	4.3
						15.58	22.4	6.69	94.7	2.68	35.47	8.31	4.5
							22.3	6.67	94.4	2.94	35.47	8.31	3.9
13:06	I1	ME	0	0	10.18	1.00	22.7	6.80	96.8	1.94	35.25	8.32	5.5
							22.7	6.79	96.6	1.93	35.28	8.32	4.9
						5.09	22.6	6.42	91.2	2.45	35.34	8.31	5.1
							22.6	6.39	90.7	2.82	35.34	8.30	5.2
						9.18	22.5	6.32	89.5	4.88	35.34	8.29	5.8
							22.4	6.28	88.9	4.40	35.34	8.29	5.4
9:34	CC1	MF	0	0	8.58	1.00	22.6	6.83	97.0	1.72	35.37	8.31	4.7
							22.6	6.81	96.7	1.74	35.38	8.31	4.9
						4.29	22.5	6.76	95.8	1.85	35.44	8.30	4.4
							22.4	6.77	95.8	1.86	35.46	8.30	5
						7.58	22.4	6.75	95.6	1.97	35.46	8.30	5.3
							22.4	6.74	95.4	2.05	35.46	8.30	5.1
9:40	CC2	MF	0	0	11.64	1.00	22.6	6.77	96.2	1.81	35.36	8.30	4.9
							22.6	6.74	95.7	1.87	35.36	8.30	5.8
						5.82	22.5	6.56	92.9	2.46	35.37	8.30	3.9
							22.5	6.51	92.3	2.59	35.37	8.30	4.2
						10.64	22.4	6.44	91.2	3.94	35.41	8.29	3.3
							22.4	6.44	91.2	3.24	35.42	8.29	4.1
9:57	CC3	MF	0	0	9.77	1.00	22.7	6.68	94.9	1.81	35.30	8.28	7.1
							22.6	6.68	94.9	1.84	35.30	8.28	6.6
						4.89	22.5	6.38	90.4	2.41	35.31	8.28	4.3
							22.5	6.33	89.6	2.81	35.32	8.28	3.4
						8.77	22.5	6.25	88.5	2.89	35.34	8.27	2.7
							22.4	6.25	88.4	2.81	35.35	8.27	3.7
9:23	CC4	MF	0	0	2.16								
						1.08	22.6	6.73	95.5	2.86	35.40	8.31	2.9
							22.6	6.67	94.6	2.89	35.40	8.31	3.9
9:45	CC13	MF	0	0	8.91								
						1.00	22.8	6.85	97.5	1.59	35.34	8.30	4.3
							22.7	6.82	97.1	1.64	35.35	8.30	5
						4.46	22.6	6.66	94.5	1.59	35.35	8.30	4.1
							22.6	6.62	94.0	1.56	35.36	8.29	4.5
						7.91	22.6	6.57	93.2	2.50	35.37	8.29	4.2
							22.5	6.52	92.4	3.28	35.37	8.29	4.3
9:18	SWI1	MF	0	0	4.15	1.00	22.6	6.72	95.4	2.55	35.34	8.10	6.9
							22.7	6.66	94.7	2.62	35.35	8.13	5.1
						3.15	22.5	6.66	94.4	2.43	35.36	8.20	6.4
							22.5	6.66	94.4	2.41	35.36	8.20	6.4
9:31	C3	MF	0	0	16.48	1.00	22.7	6.81	96.8	1.88	35.39	8.30	5
							22.6	6.81	96.7	1.80	35.40	8.30	4
						8.24	22.5	6.79	96.3	1.66	35.43	8.30	7.4
							22.5	6.78	96.0	1.75	35.44	8.30	8.4
						15.48	22.3	6.66	94.1	3.87	35.49	8.30	14.4
							22.3	6.63	93.7	3.81	35.49	8.30	13.6
9:26	C4	MF	0	0	16.22	1.00	22.6	6.88	97.7	1.41	35.40	8.38	7.3
							22.6	6.88	97.7	1.41	35.40	8.36	7
						8.11	22.4	6.77	95.8	1.74	35.44	8.33	8.2
							22.4	6.74	95.5	1.72	35.44	8.33	7.2
						15.22	22.4	6.68	94.4	2.74	35.46	8.32	9.1
							22.3	6.65	94.1	3.15	35.47	8.32	8
9:49	I1	MF	0	0	10.05	1.00	22.7	6.71	95.4	2.04	35.34	8.30	7.8
							22.7	6.71	95.4	2.08	35.34	8.30	6.9
						5.03	22.5	6.51	92.3	2.89	35.33	8.29	7.1
							22.5	6.43	91.1	3.23	35.33	8.29	7.4
						9.05	22.4	6.29	89.1	4.11	35.35	8.28	5
							22.4	6.29	89.0	4.04	35.35	8.28	6

Remarks: MF - Middle Flood tide
ME - Middle Ebb tide

Landfill Gas Monitoring Results (Wan O Road)

Monitoring Location	Date	Time	Weather	Temperature (°C)	Methane (%)			Oxygen (%)			Carbon Dioxide (%)		
					Measurement Result	Action Level	Limit Level	Measurement Result	Action Level	Limit Level	Measurement Result	Action Level	Limit Level
Wan O Road	1/11/2019	8:30	Fine	26	0.1	10	20	20.8	19	18	0.1	0.5	1.5
	1/11/2019	14:00		29	0.1	10	20	20.8	19	18	0.1	0.5	1.5
	2/11/2019	8:30	Sunny	25	0.1	10	20	21	19	18	0.1	0.5	1.5
	2/11/2019	14:00		28	0.1	10	20	21	19	18	0.1	0.5	1.5
	4/11/2019	8:30	Fine	23	0.1	10	20	20.8	19	18	0.1	0.5	1.5
	4/11/2019	14:00		28	0.1	10	20	20.9	19	18	0.1	0.5	1.5
	5/11/2019	8:30	Fine	21	0.1	10	20	20.9	19	18	0.1	0.5	1.5
	5/11/2019	14:00		27	0.1	10	20	21	19	18	0.1	0.5	1.5
	6/11/2019	8:30	Fine	22	0.1	10	20	21	19	18	0.1	0.5	1.5
	6/11/2019	14:00		27	0.1	10	20	21	19	18	0.1	0.5	1.5
	7/11/2019	8:30	Sunny	21	0.1	10	20	20.8	19	18	0.1	0.5	1.5
	7/11/2019	14:00		27	0.1	10	20	20.8	19	18	0.1	0.5	1.5
	8/11/2019	8:30	Fine	20	0.1	10	20	21	19	18	0.1	0.5	1.5
	8/11/2019	14:00		27	0.1	10	20	21	19	18	0.1	0.5	1.5
	9/11/2019	8:30	Cloudy	20	0.1	10	20	20.8	19	18	0.2	0.5	1.5
	9/11/2019	14:00		26	0.1	10	20	20.8	19	18	0.2	0.5	1.5
	11/11/2019	8:30	Sunny	21	0.1	10	20	20.9	19	18	0.1	0.5	1.5
	11/11/2019	14:00		27	0.1	10	20	21	19	18	0.1	0.5	1.5
	12/11/2019	8:30	Sunny	22	0.1	10	20	21	19	18	0.1	0.5	1.5
	12/11/2019	14:00		25	0.1	10	20	20.8	19	18	0.1	0.5	1.5
	13/11/2019	8:30	Sunny	22	0.1	10	20	20.9	19	18	0.1	0.5	1.5
	13/11/2019	14:00		27	0.1	10	20	20.8	19	18	0.1	0.5	1.5
	14/11/2019	8:30	Fine	21	0.1	10	20	20.9	19	18	0.1	0.5	1.5
	14/11/2019	14:00		26	0.1	10	20	20.8	19	18	0.1	0.5	1.5
	15/11/2019	8:30	Sunny	22	0.1	10	20	21	19	18	0.1	0.5	1.5
	15/11/2019	14:00		26	0.1	10	20	21	19	18	0.1	0.5	1.5
	16/11/2019	8:30	Fine	22	0.1	10	20	21	19	18	0.1	0.5	1.5
	16/11/2019	14:00		26	0.1	10	20	21	19	18	0.1	0.5	1.5
	18/11/2019	8:30	Sunny	21	0.1	10	20	20.8	19	18	0.1	0.5	1.5
	18/11/2019	14:00		29	0.1	10	20	20.9	19	18	0.1	0.5	1.5
	19/11/2019	8:30	Sunny	18	0.1	10	20	20.8	19	18	0.1	0.5	1.5
	19/11/2019	14:00		23	0.1	10	20	20.9	19	18	0.1	0.5	1.5
	20/11/2019	8:30	Sunny	19	0.1	10	20	20.8	19	18	0.1	0.5	1.5
	20/11/2019	14:00		24	0.1	10	20	20.8	19	18	0.1	0.5	1.5
	21/11/2019	8:30	Fine	19	0.1	10	20	21	19	18	0.1	0.5	1.5
	21/11/2019	14:00		25	0.1	10	20	20.8	19	18	0.1	0.5	1.5
	22/11/2019	8:30	Fine	19	0.1	10	20	20.8	19	18	0.1	0.5	1.5
	22/11/2019	14:00		26	0.1	10	20	20.9	19	18	0.1	0.5	1.5
	23/11/2019	8:30	Fine	21	0.1	10	20	21	19	18	0.1	0.5	1.5
	23/11/2019	14:00		27	0.1	10	20	21	19	18	0.2	0.5	1.5
	25/11/2019	8:30	Sunny	22	0.1	10	20	20.8	19	18	0.2	0.5	1.5
	25/11/2019	14:00		27	0.1	10	20	20.9	19	18	0.1	0.5	1.5
	26/11/2019	8:30	Fine	21	0.1	10	20	21	19	18	0.1	0.5	1.5
	26/11/2019	14:00		23	0.1	10	20	21	19	18	0.1	0.5	1.5
	27/11/2019	8:30	Fine	21	0.1	10	20	21	19	18	0.1	0.5	1.5
	27/11/2019	14:00		25	0.1	10	20	20.8	19	18	0.2	0.5	1.5
	28/11/2019	8:30	Fine	18	0.1	10	20	21	19	18	0.1	0.5	1.5
	28/11/2019	14:00		23	0.1	10	20	20.9	19	18	0.1	0.5	1.5
	29/11/2019	8:30	Sunny	17	0.1	10	20	21	19	18	0.1	0.5	1.5
	29/11/2019	14:00		23	0.1	10	20	20.8	19	18	0.1	0.5	1.5
	30/11/2019	8:30	Sunny	18	0.1	10	20	21	19	18	0.1	0.5	1.5
	30/11/2019	14:00		24	0.1	10	20	20.8	19	18	0.1	0.5	1.5

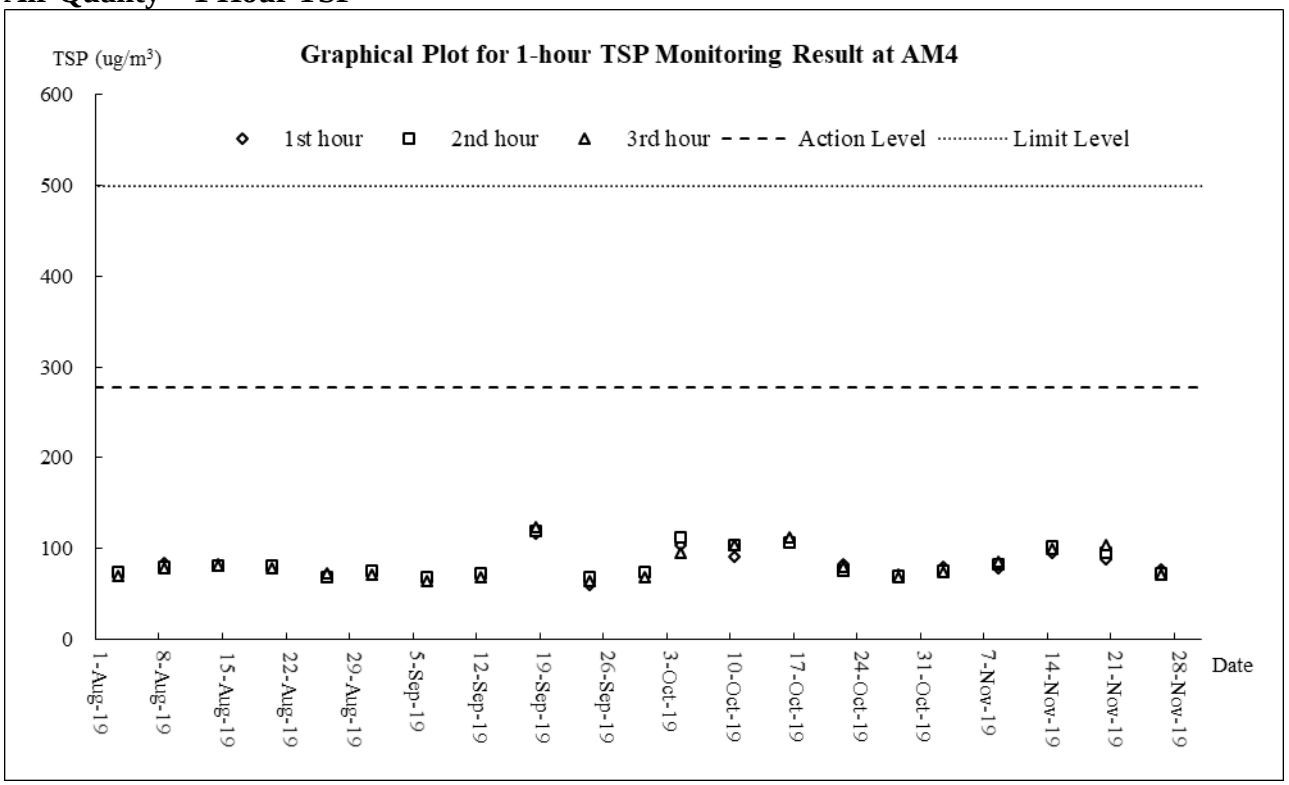
Remark:

Parameter	Criteria	Measurement
Oxygen	Action Level	< 19%
	Limit Level	< 18%
Methane	Action Level	> 10% LEL (> 0.5% v/v)
	Limit Level	> 20% LEL (>1% v/v)
Carbon Dioxide	Action Level	> 0.5%
	Limit Level	> 1.5%

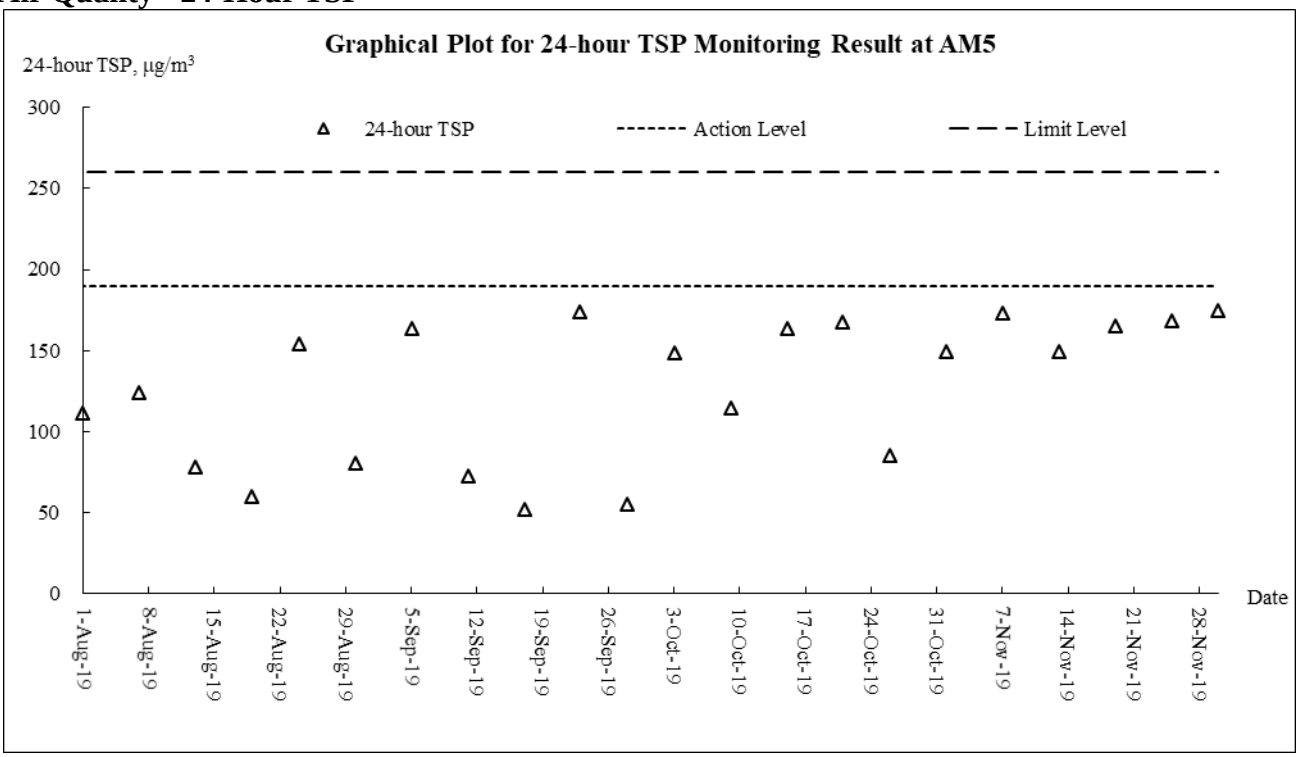
Appendix I

Graphical Plots of Monitoring Results

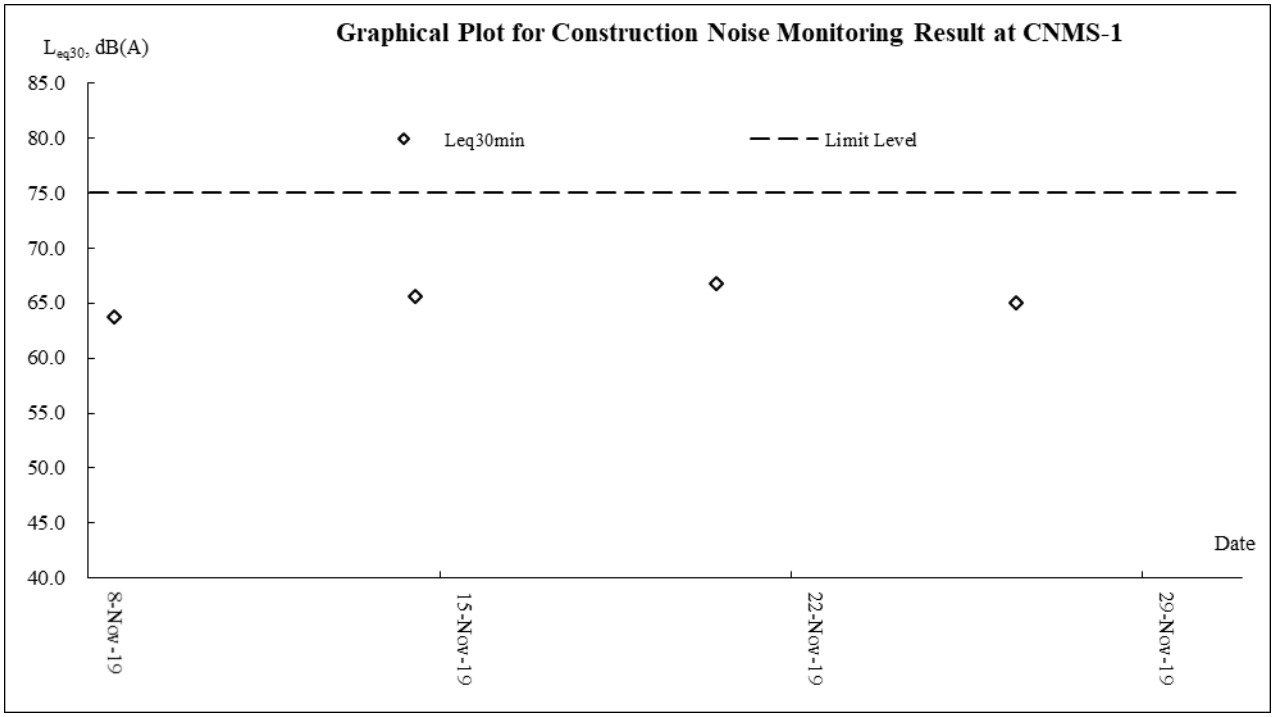
Air Quality – 1 Hour TSP

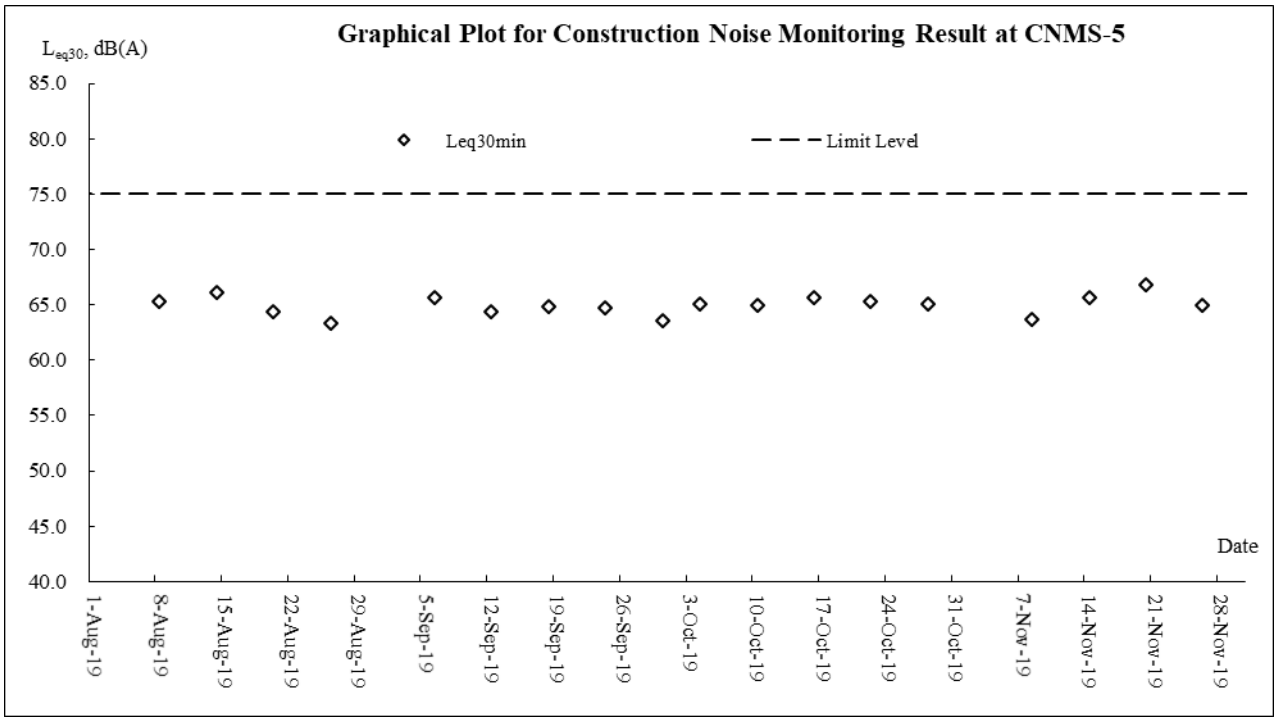


Air Quality - 24-Hour TSP

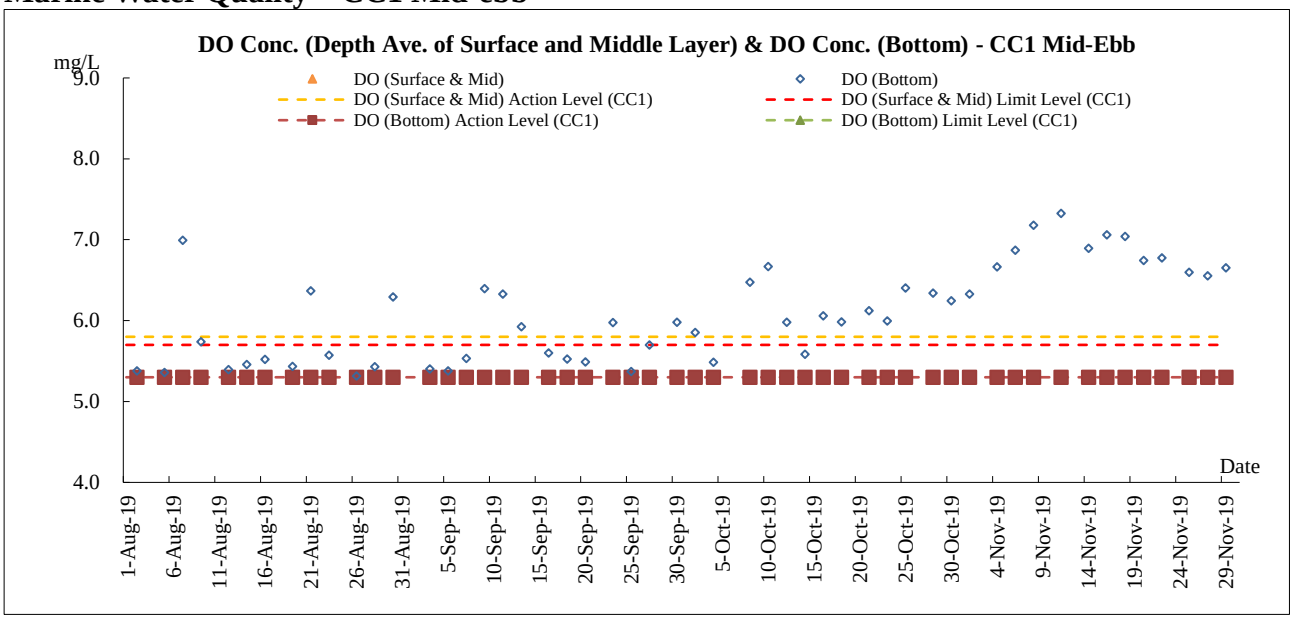


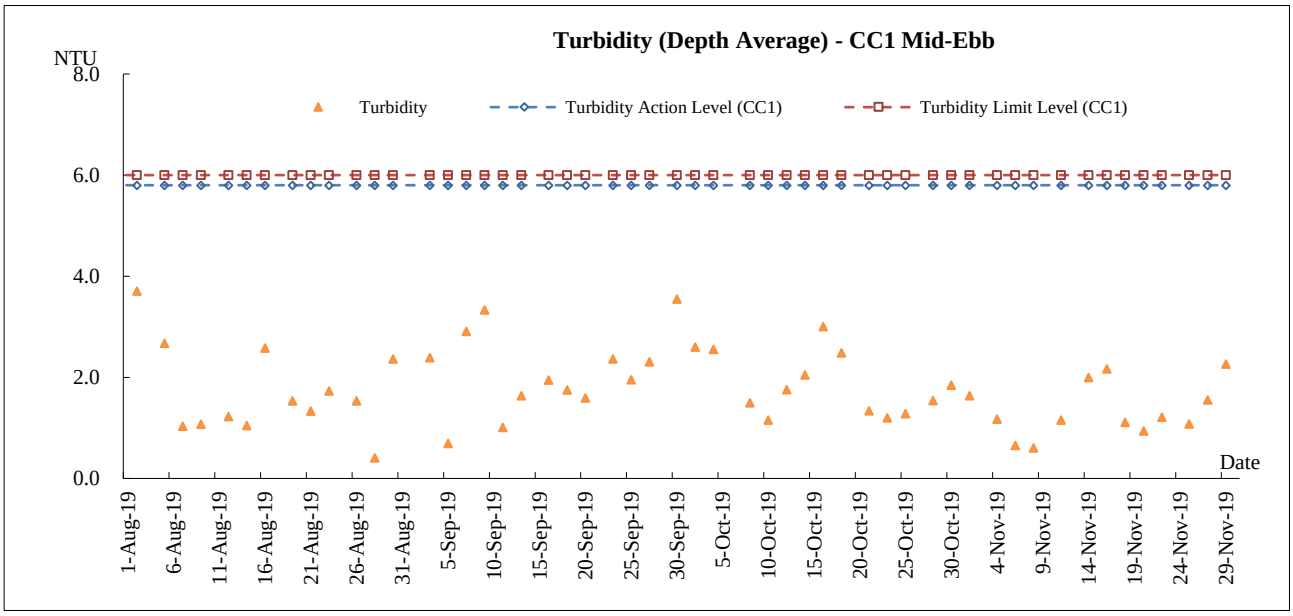
Construction Noise

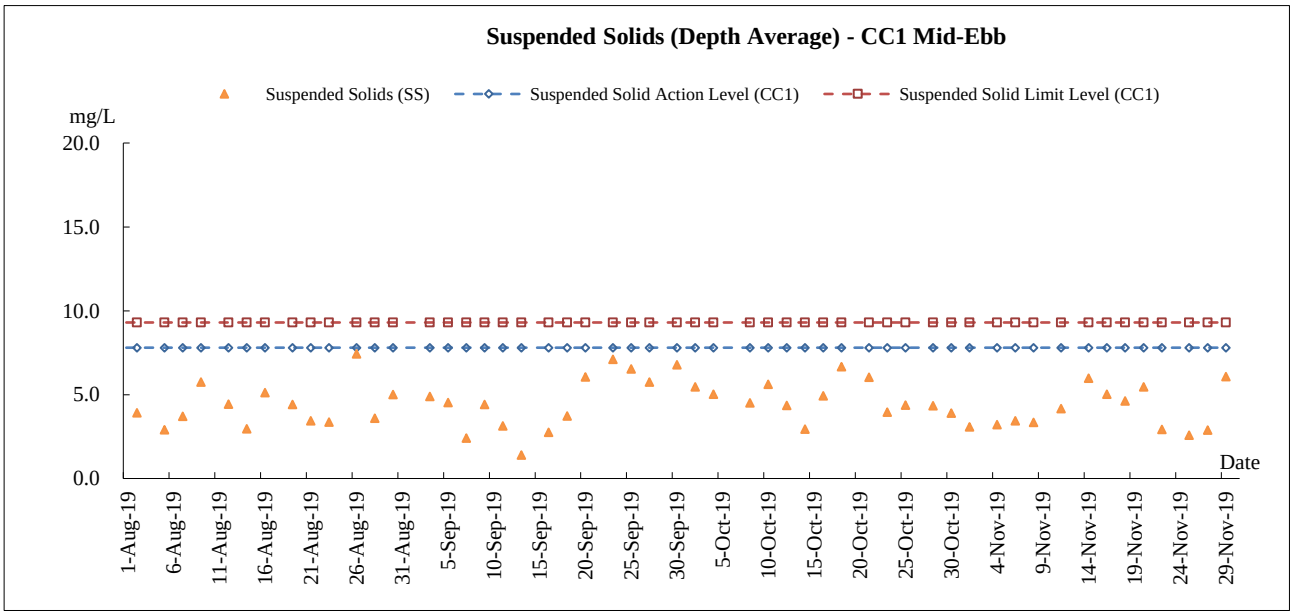




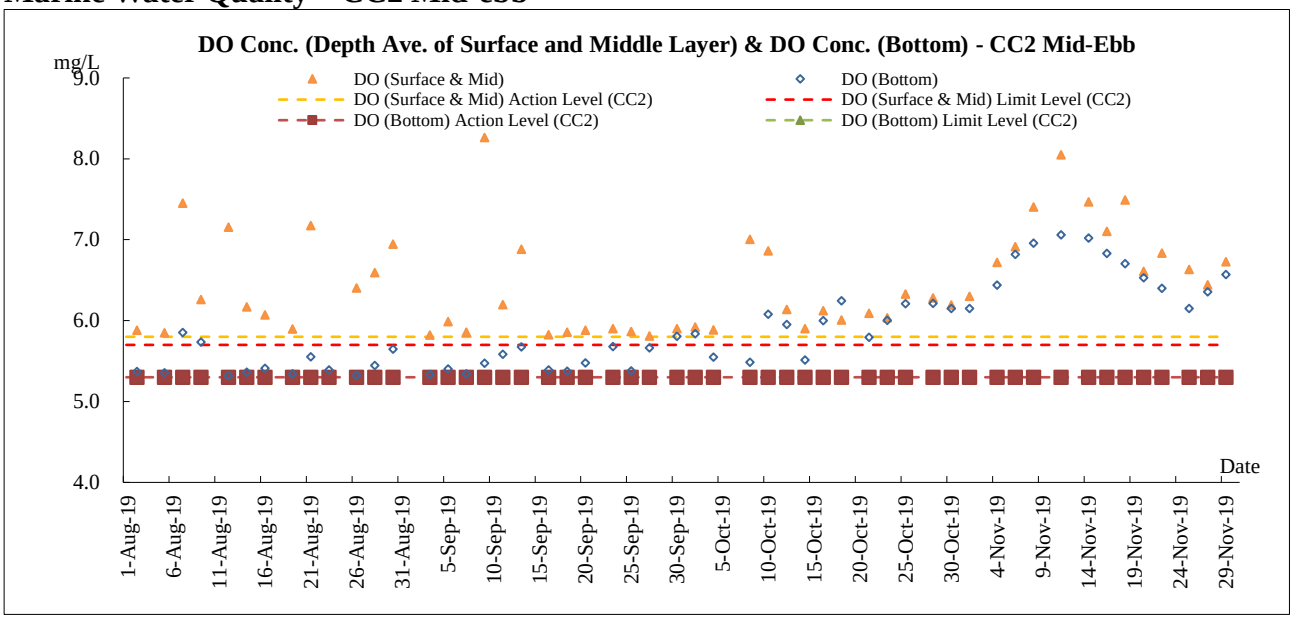
Marine Water Quality – CC1 Mid-ebb

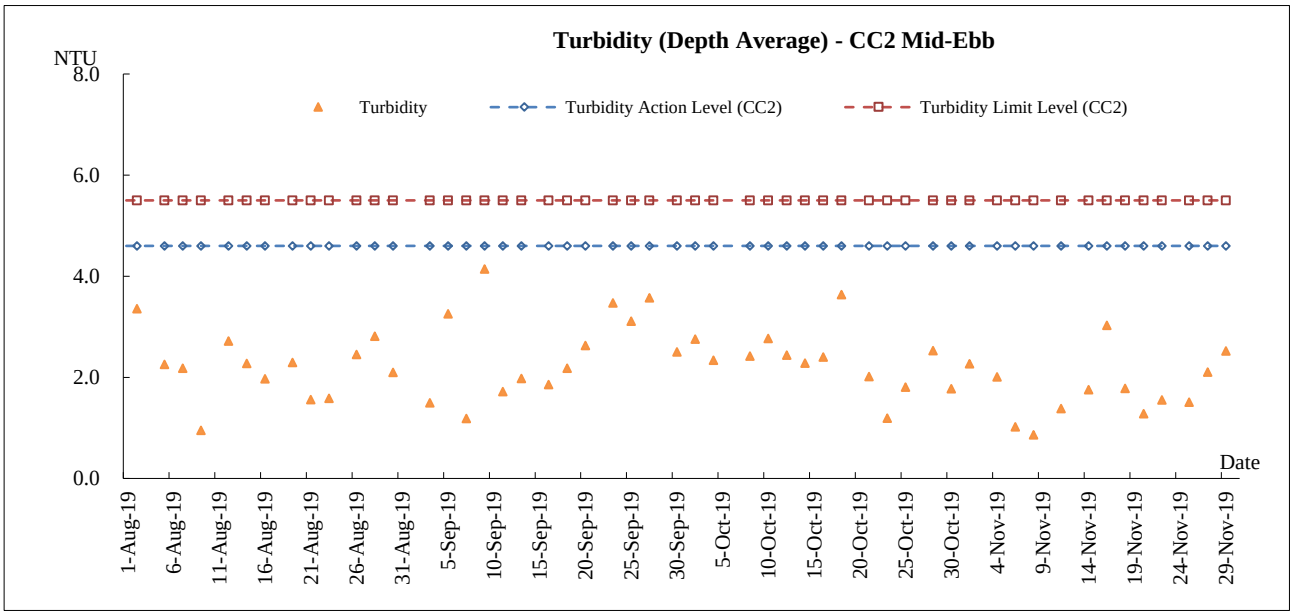


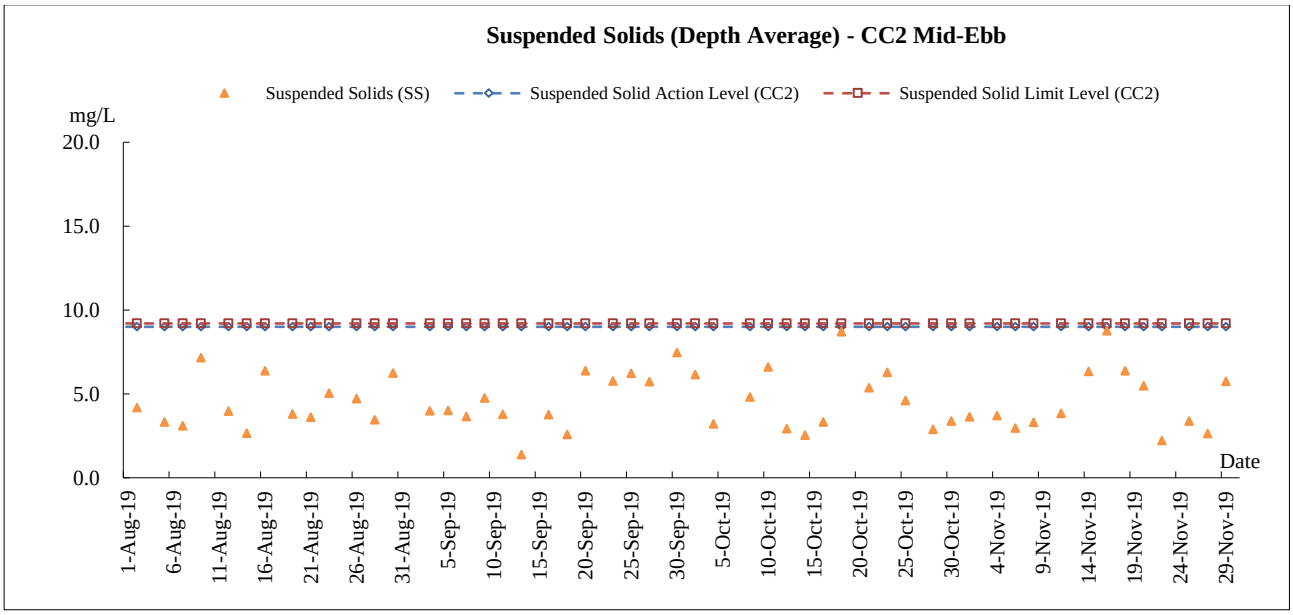




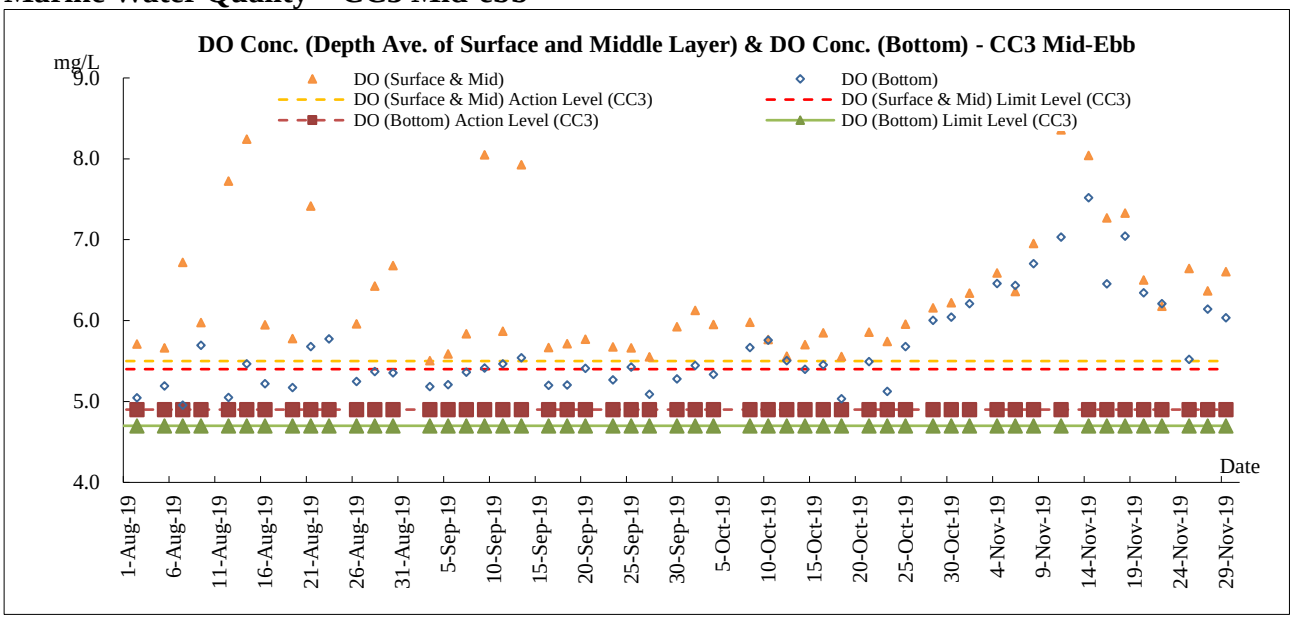
Marine Water Quality – CC2 Mid-ebb

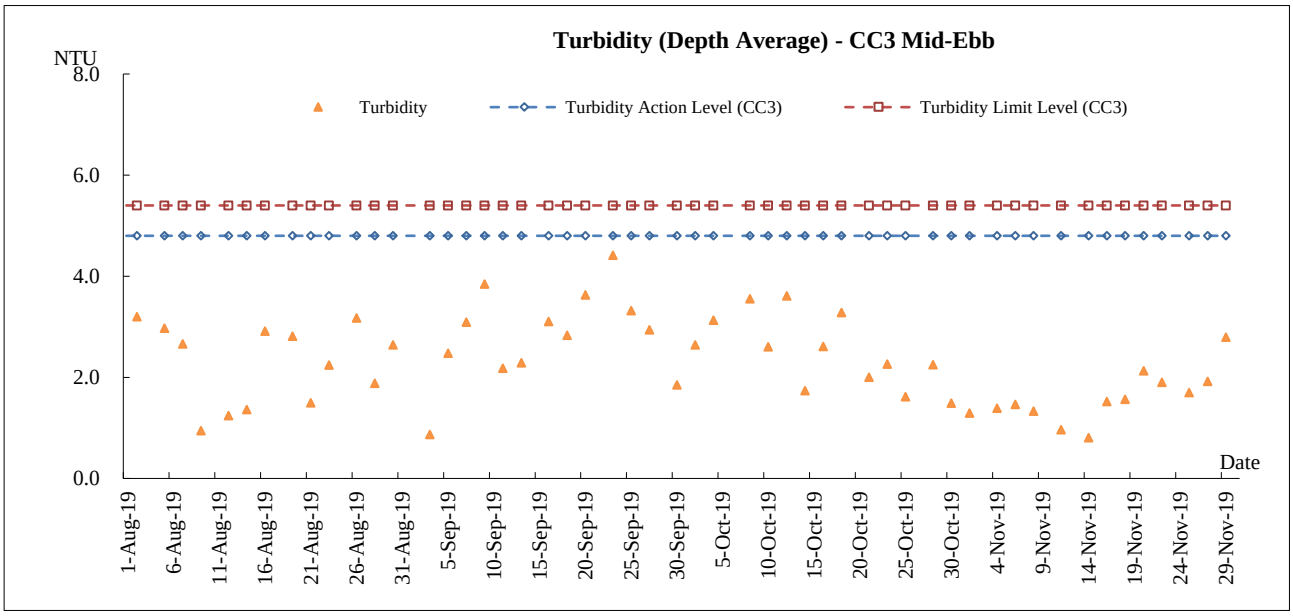


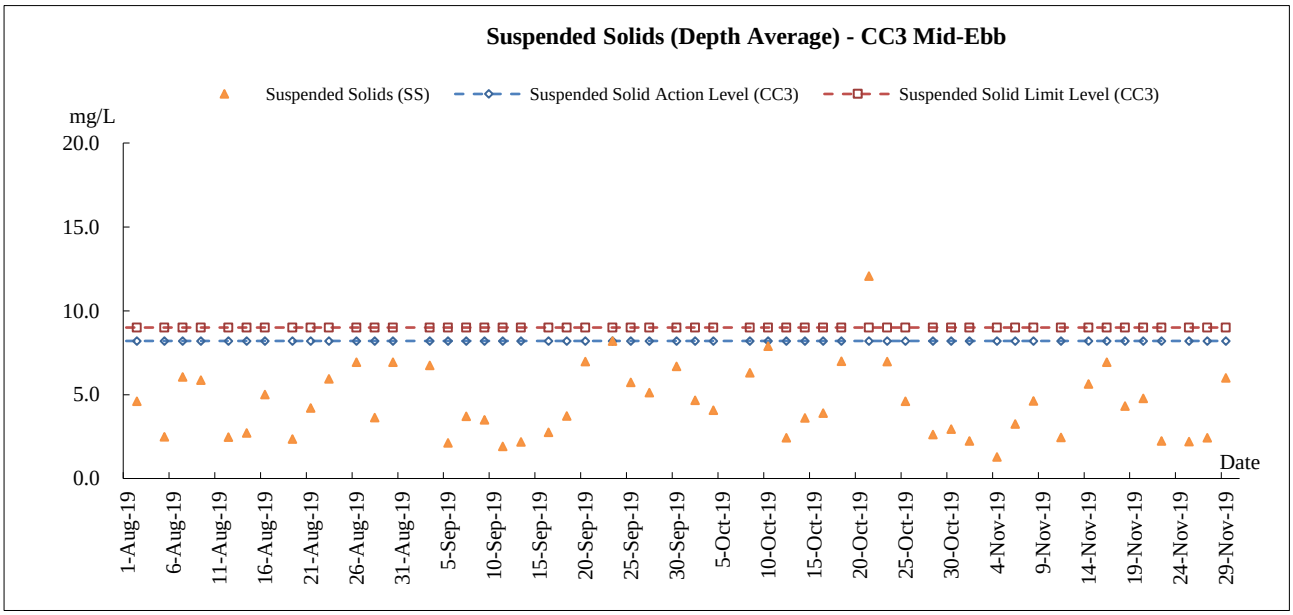




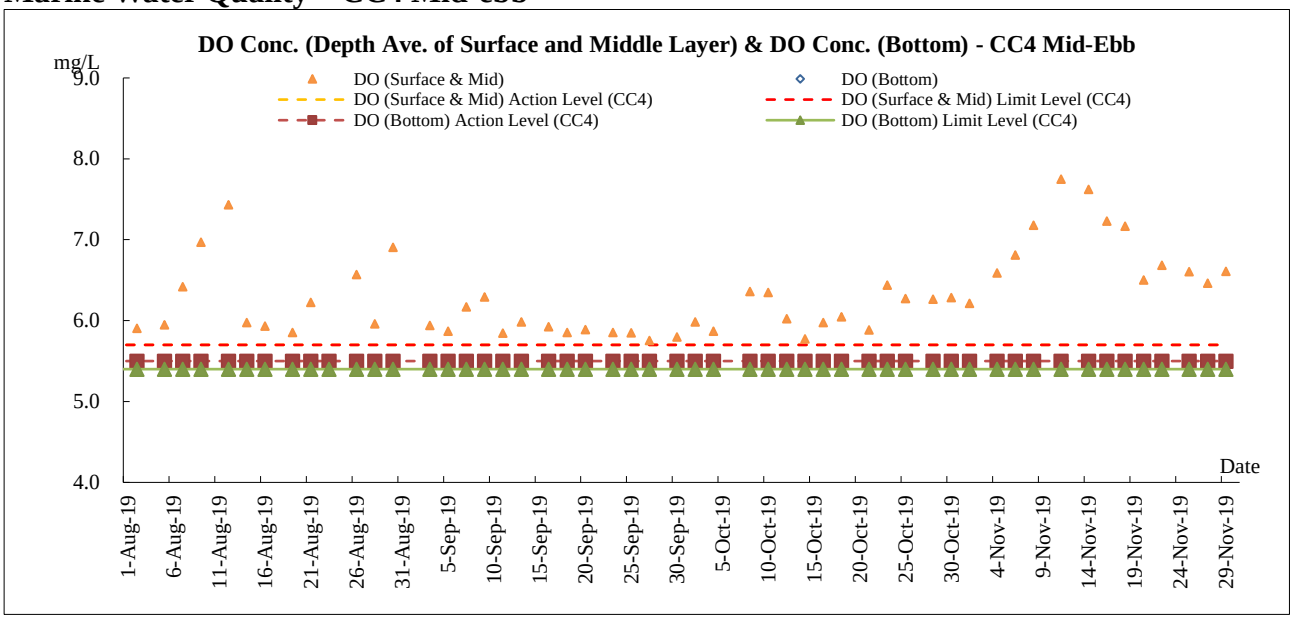
Marine Water Quality – CC3 Mid-ebb

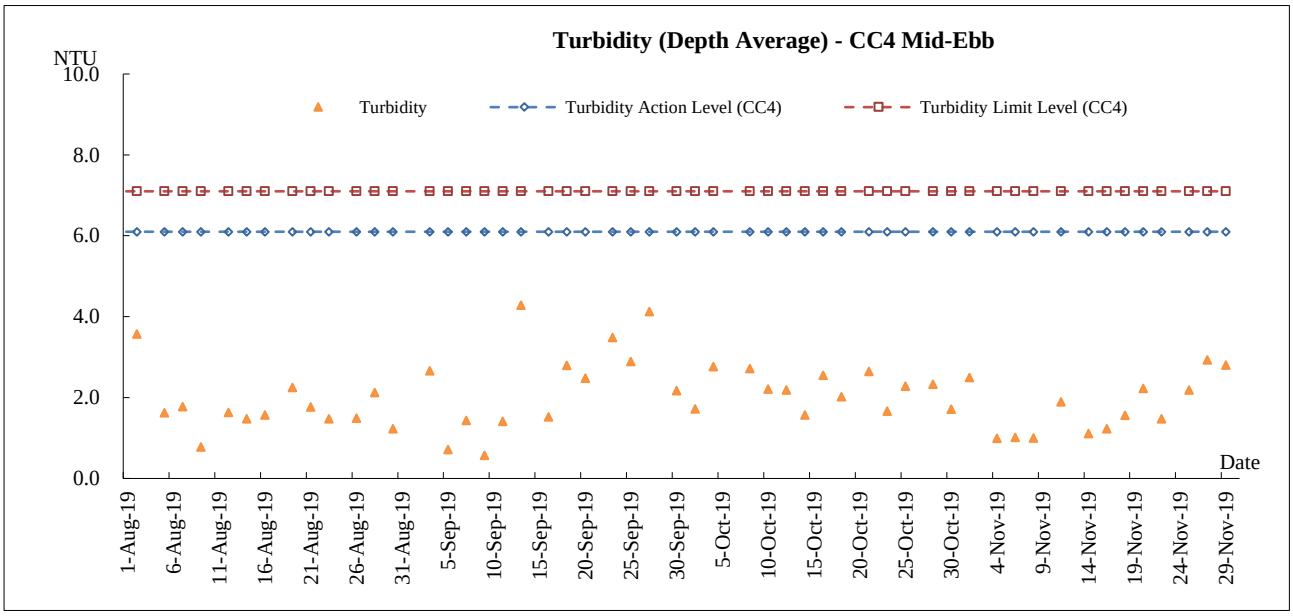


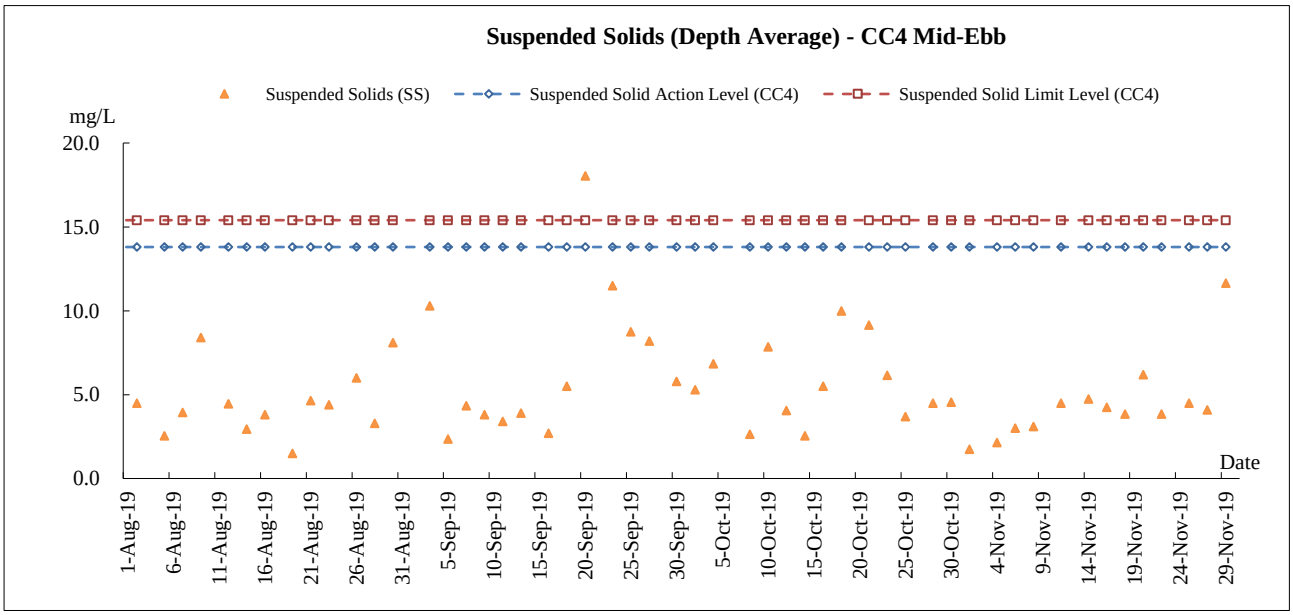




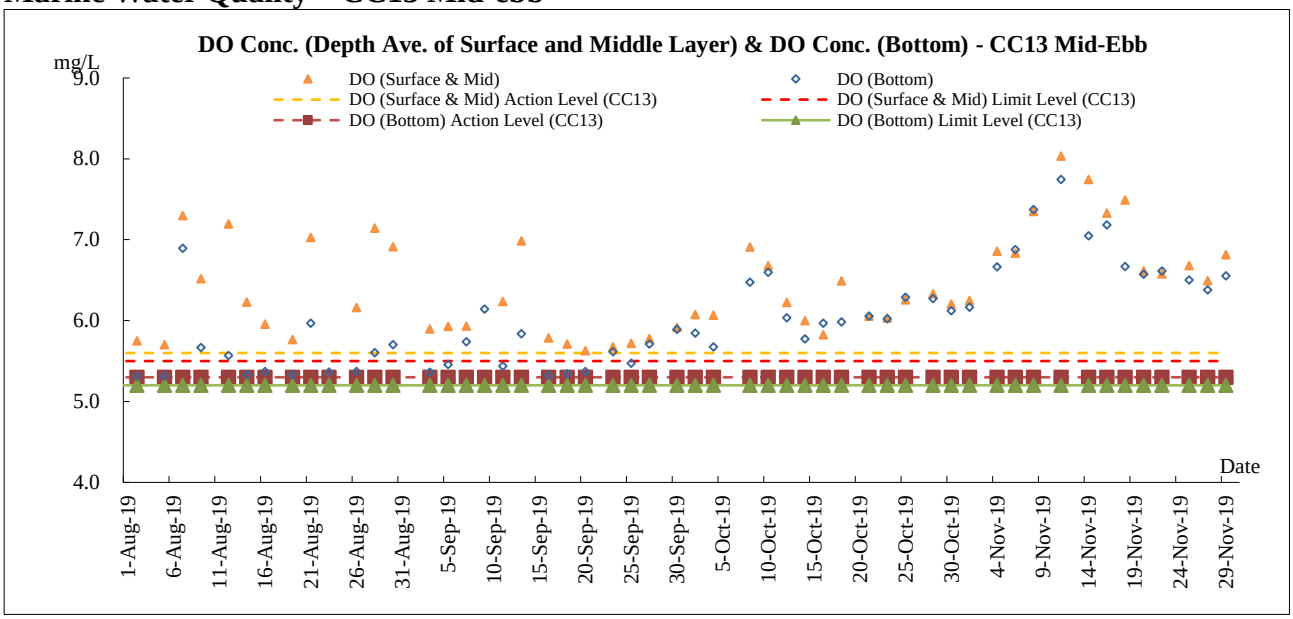
Marine Water Quality – CC4 Mid-ebb

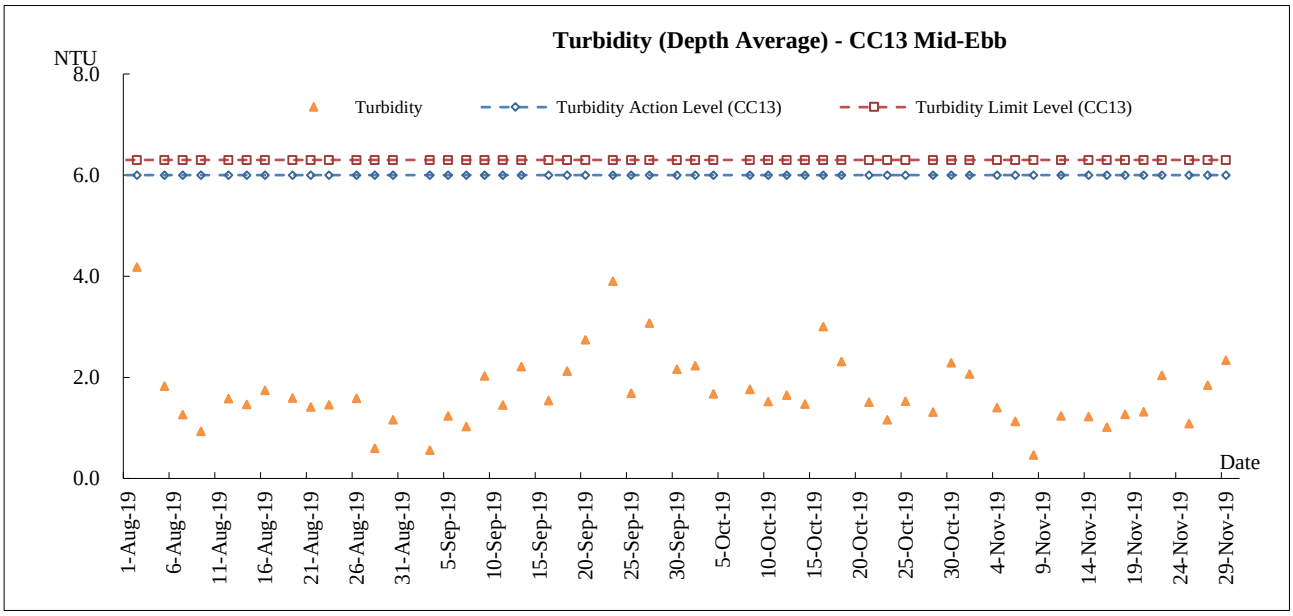


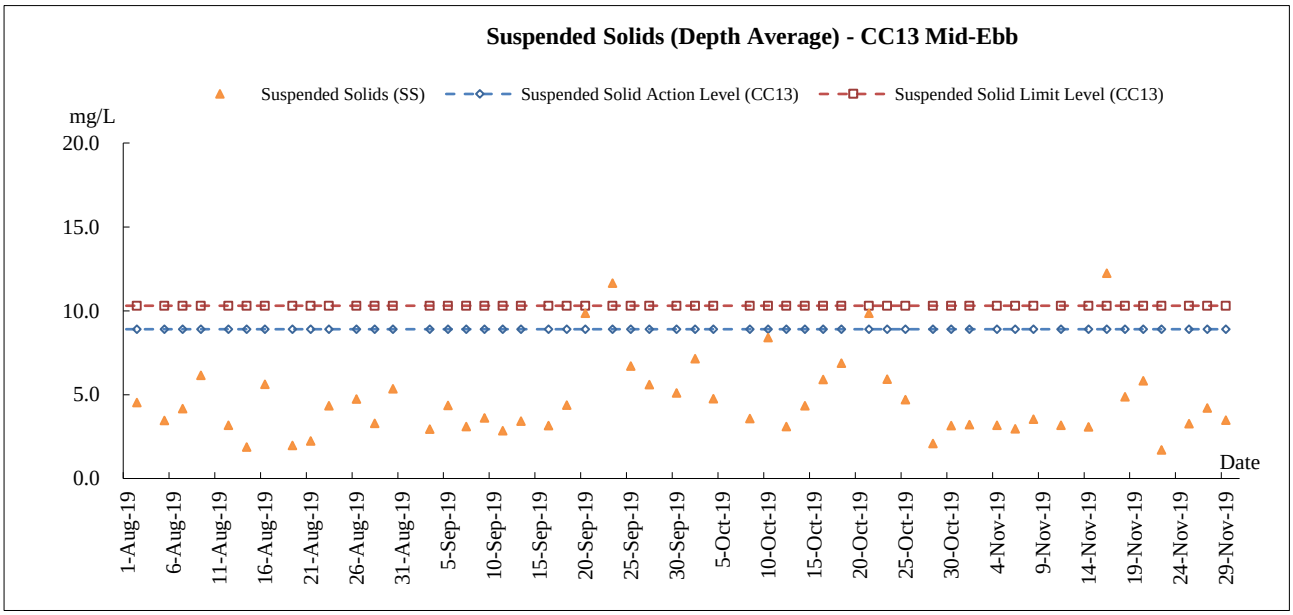




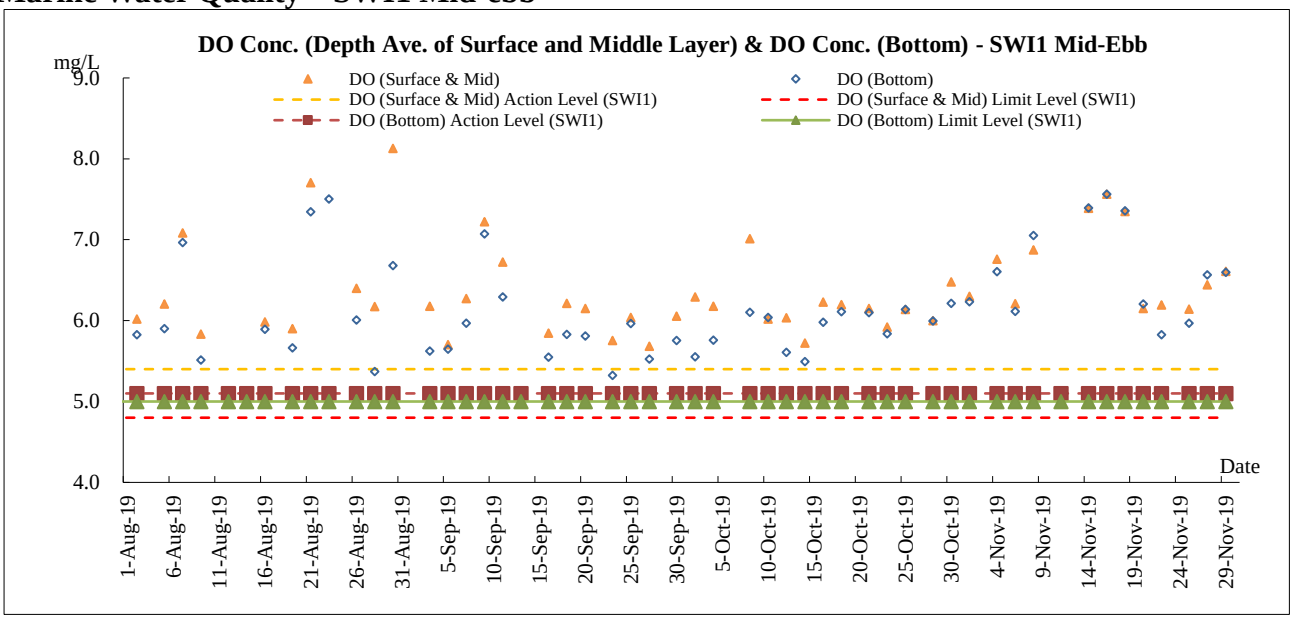
Marine Water Quality – CC13 Mid-ebb

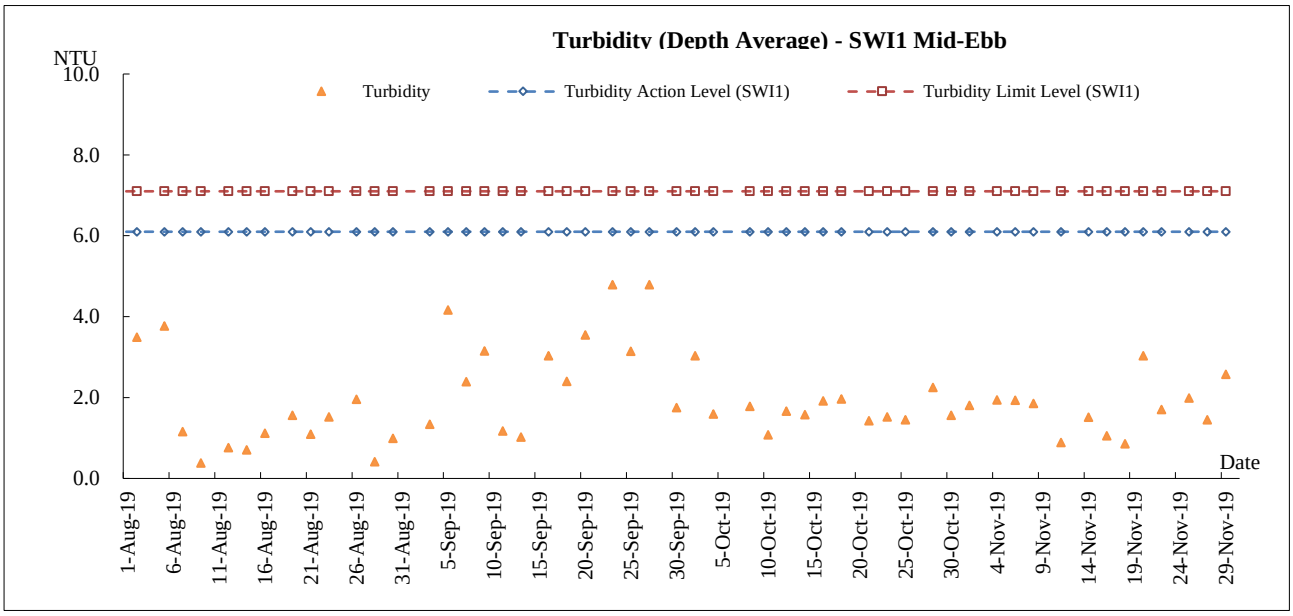


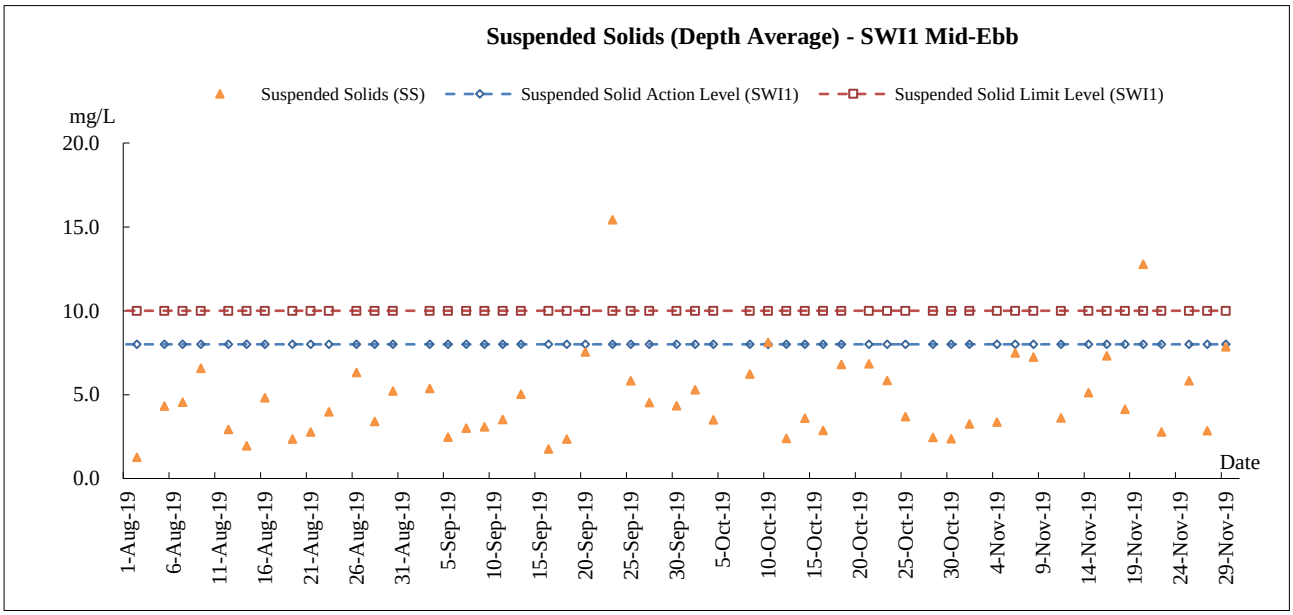




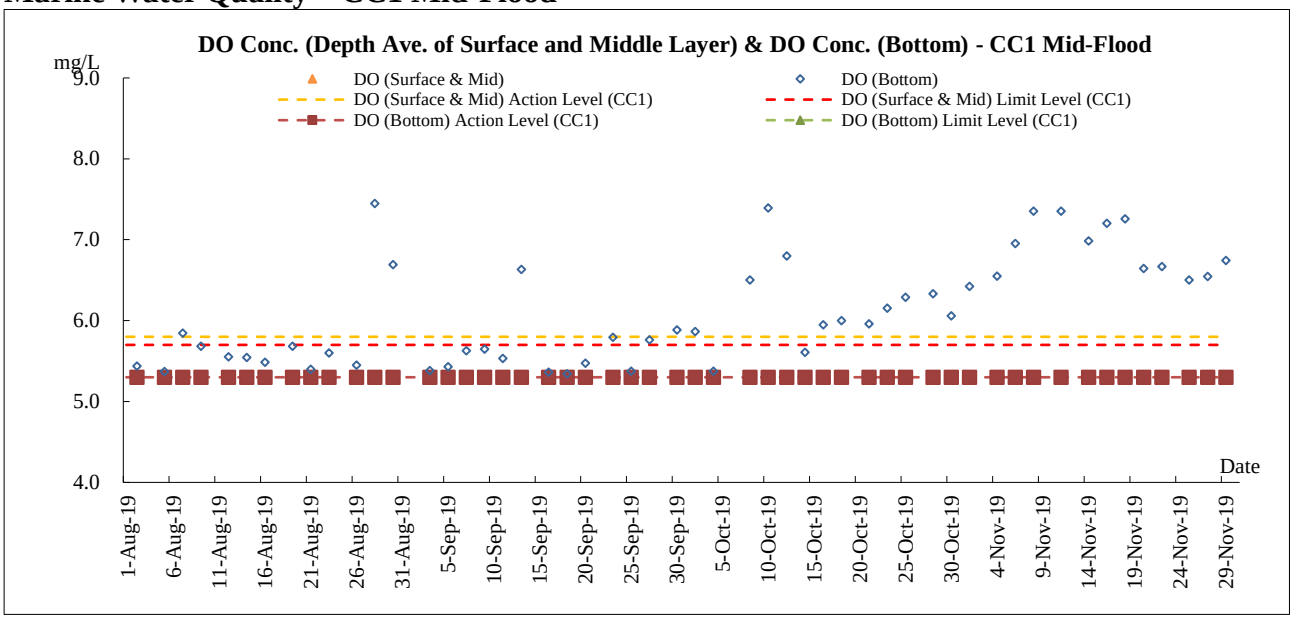
Marine Water Quality – SWI1 Mid-ebb

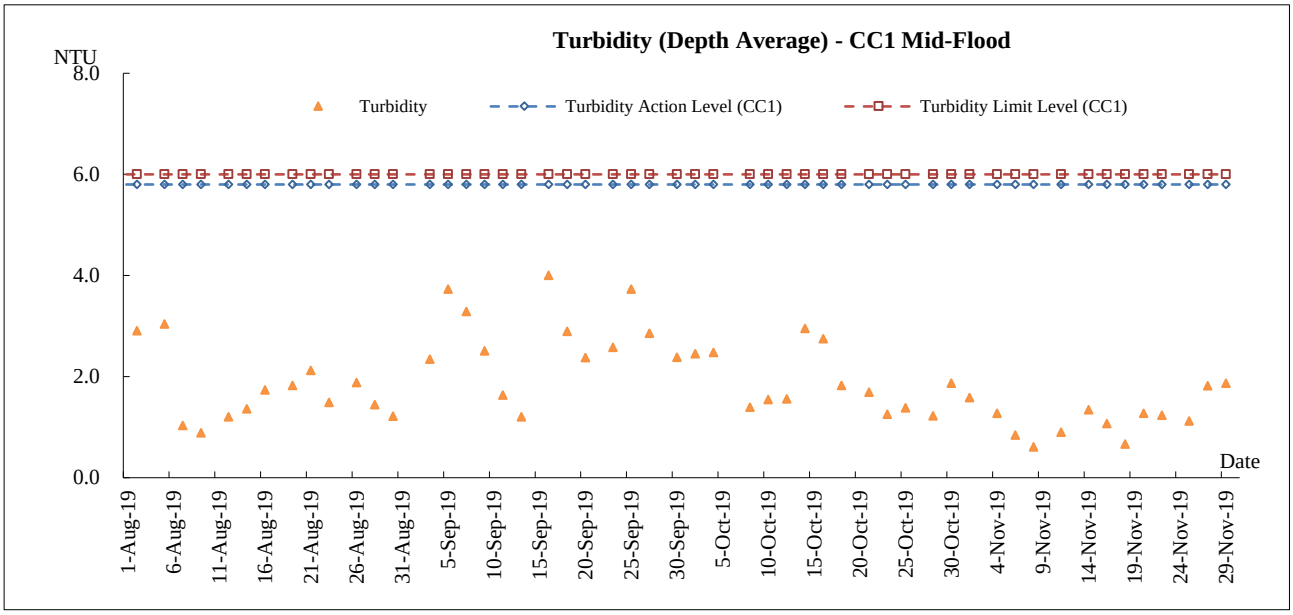


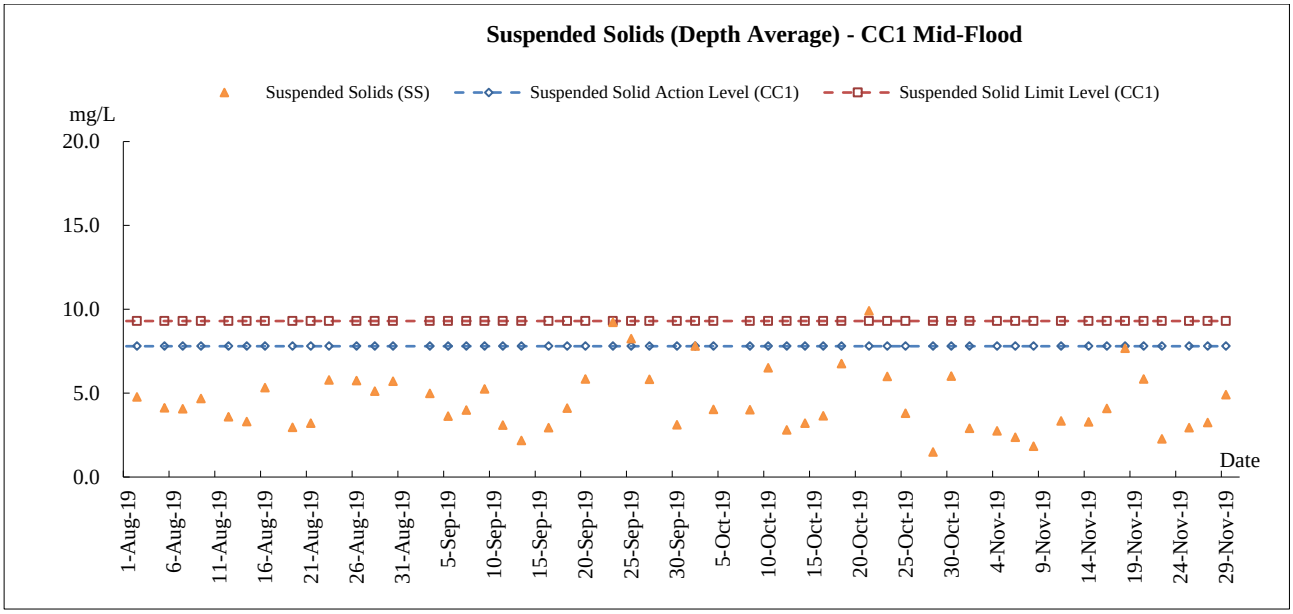




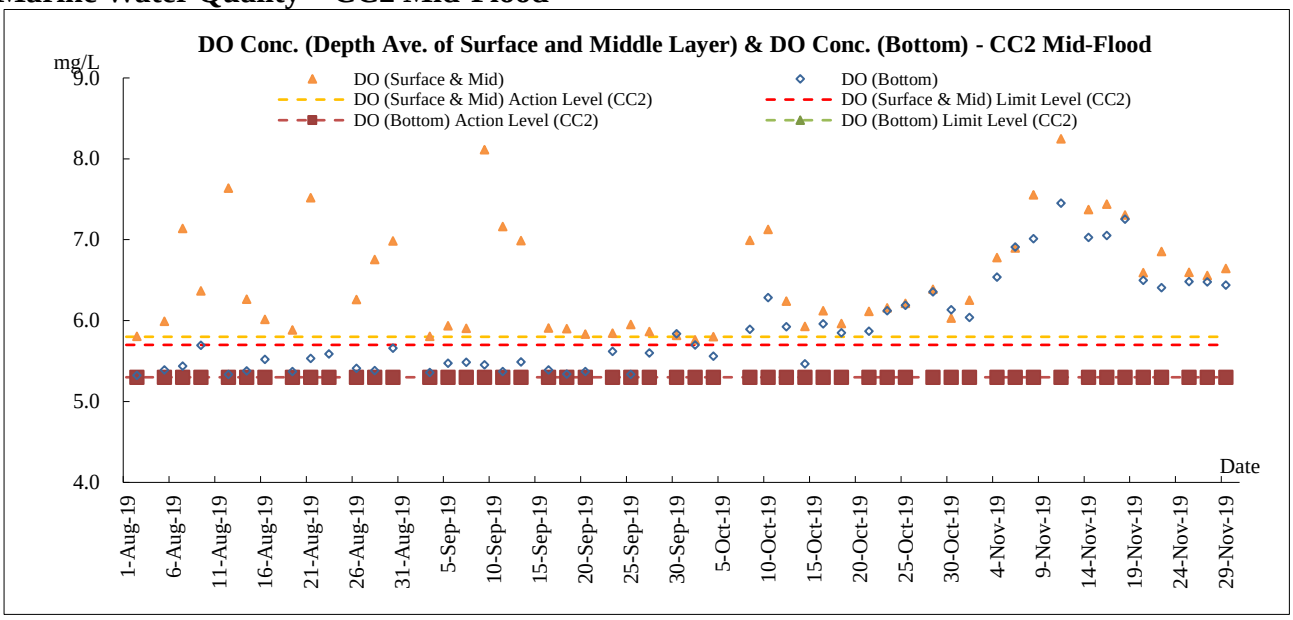
Marine Water Quality – CC1 Mid-Flood

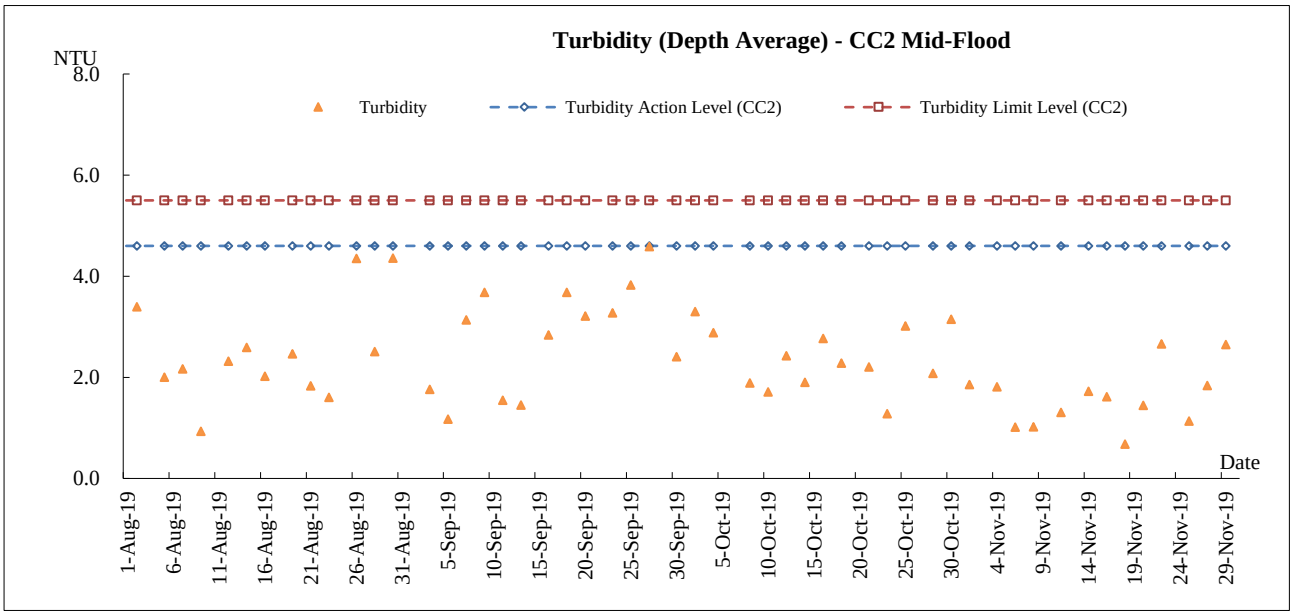


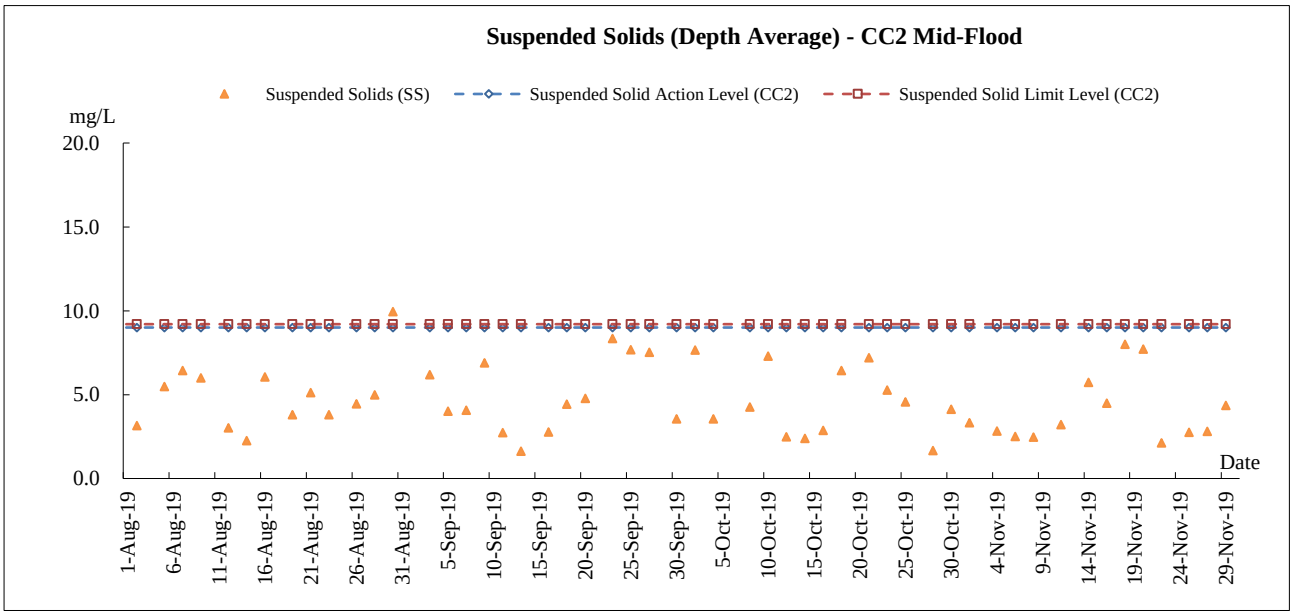




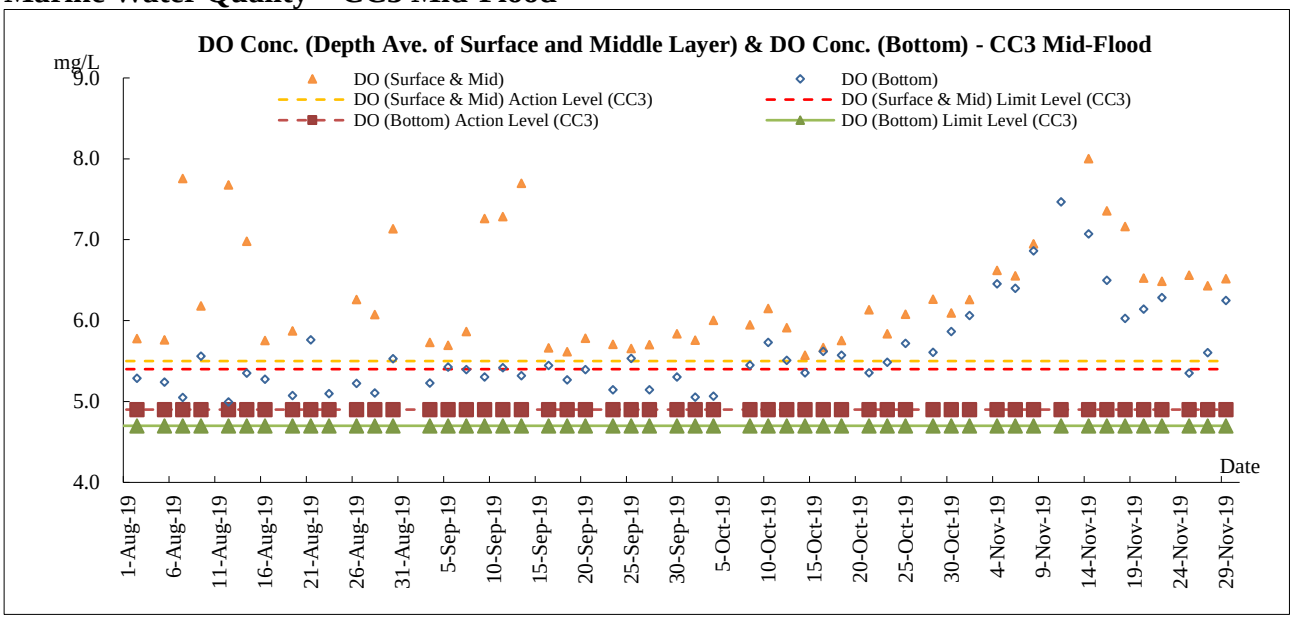
Marine Water Quality – CC2 Mid-Flood

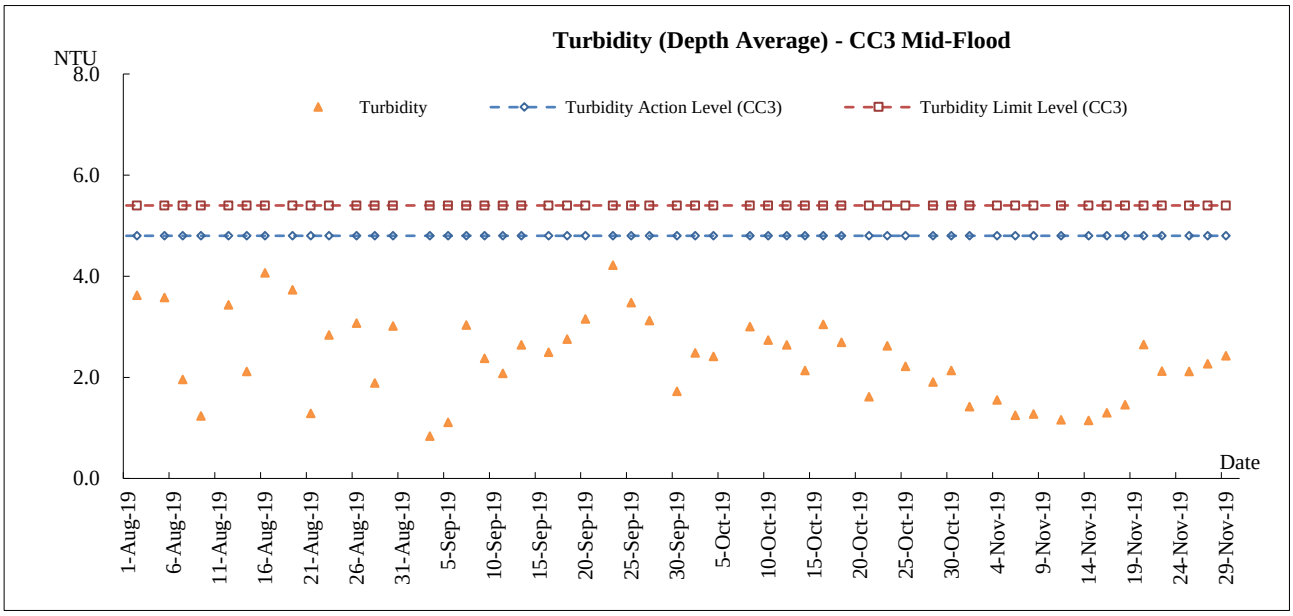


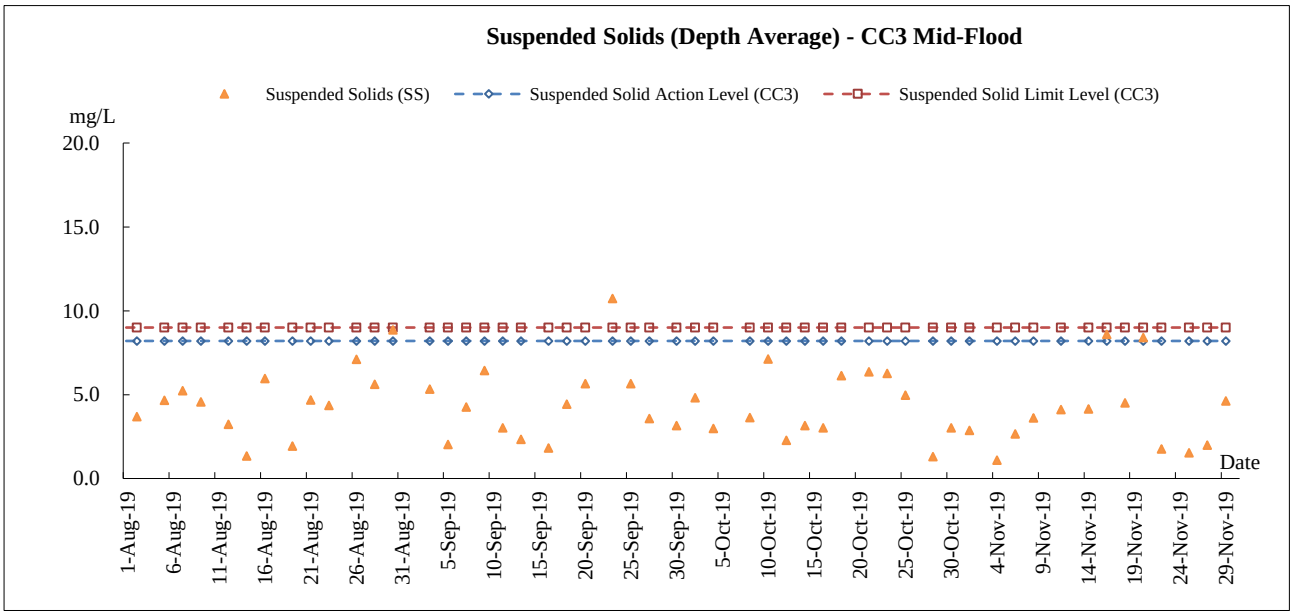




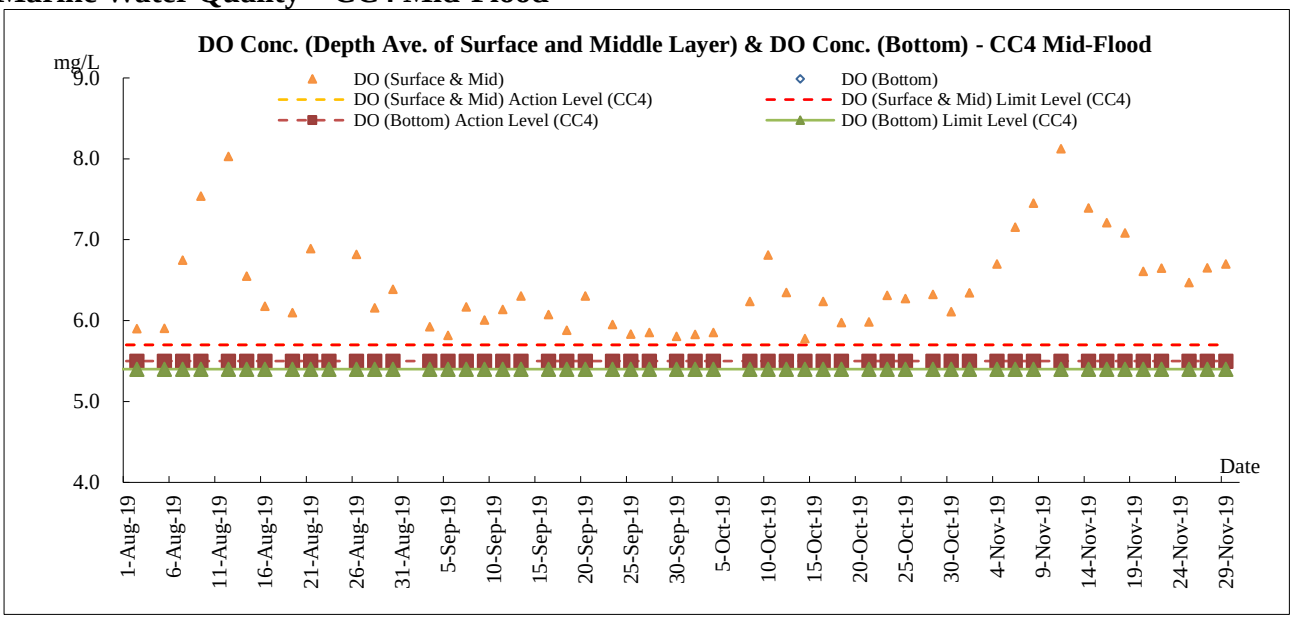
Marine Water Quality – CC3 Mid-Flood

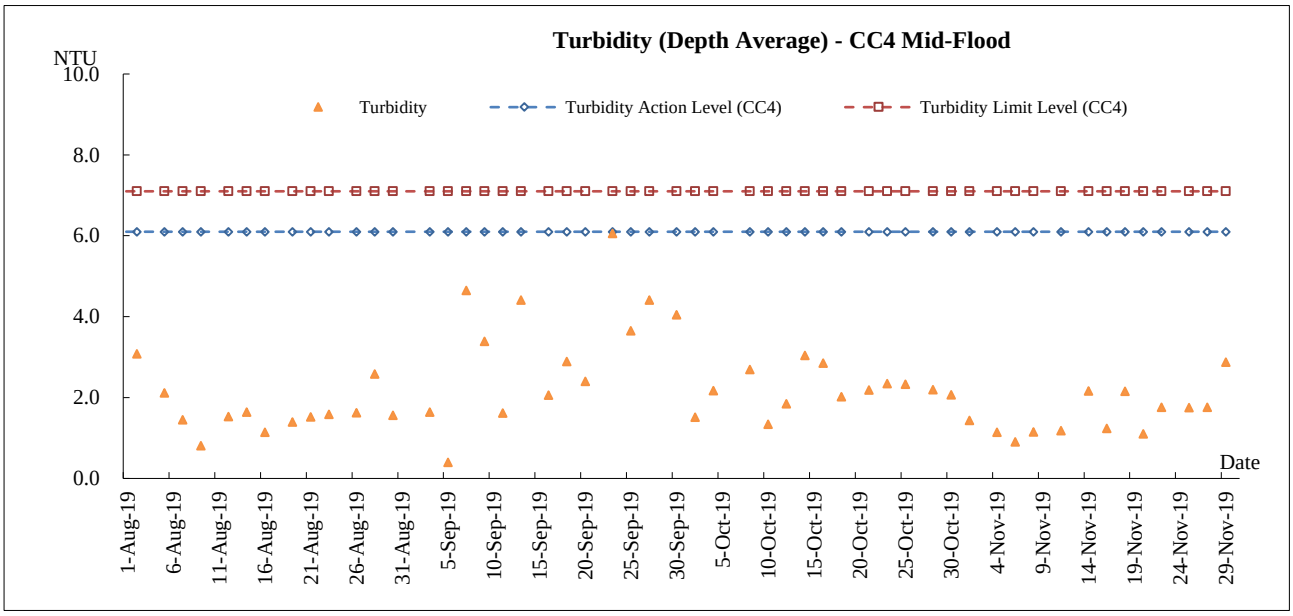


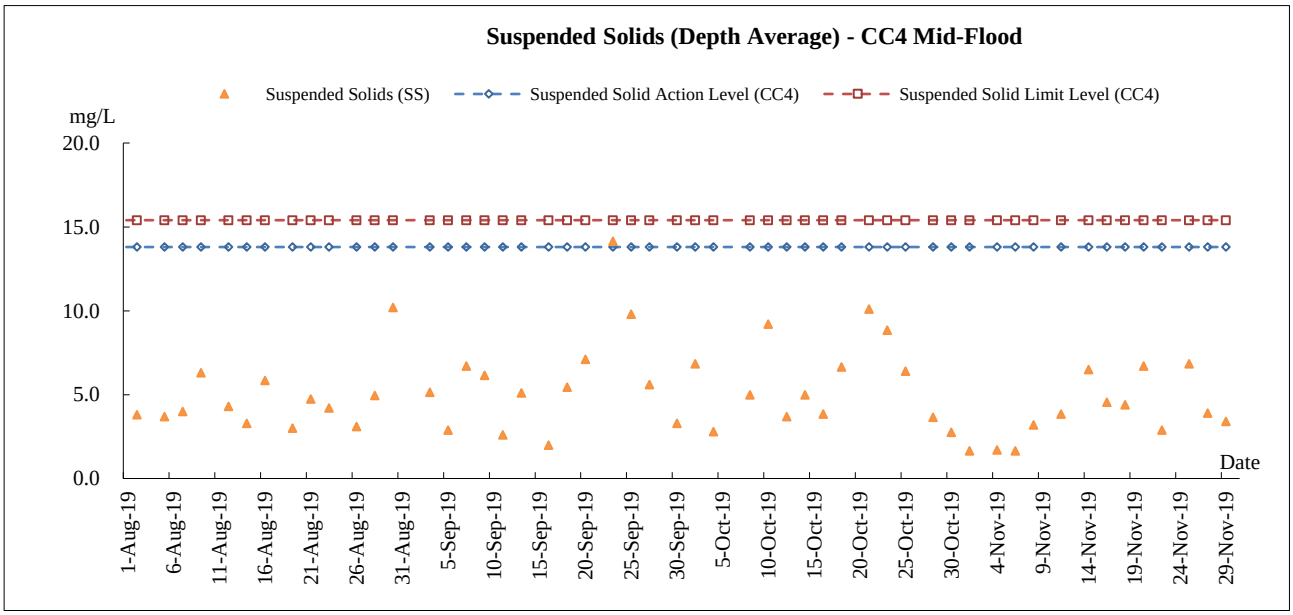




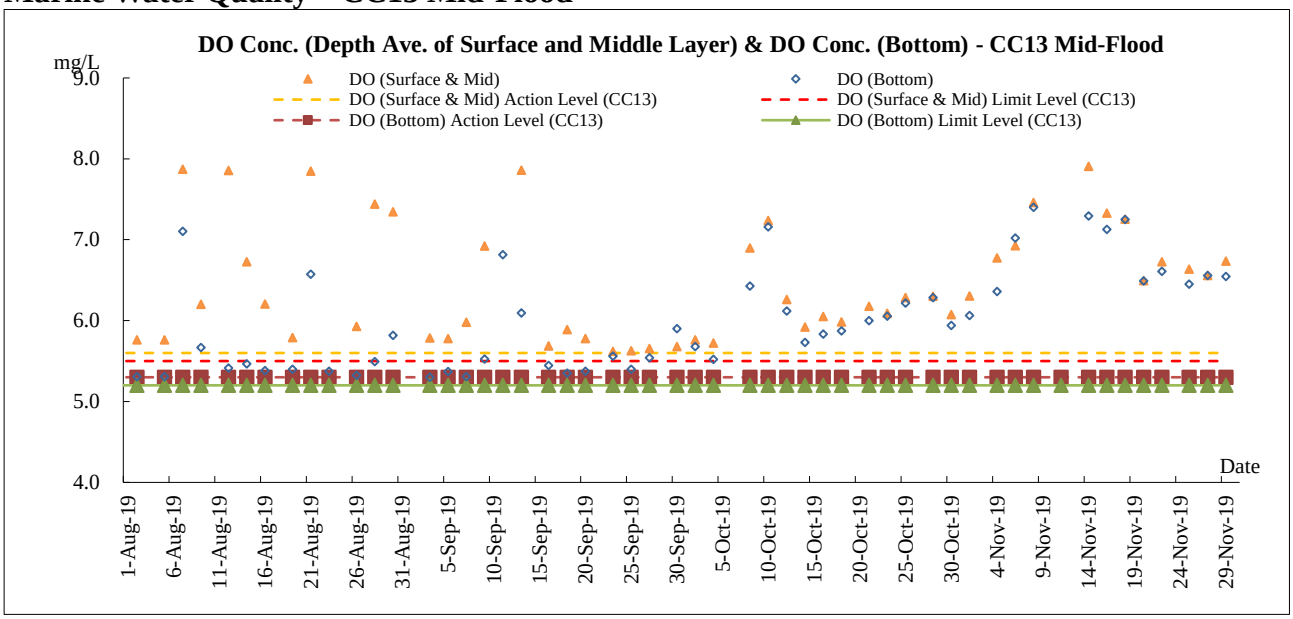
Marine Water Quality – CC4 Mid-Flood

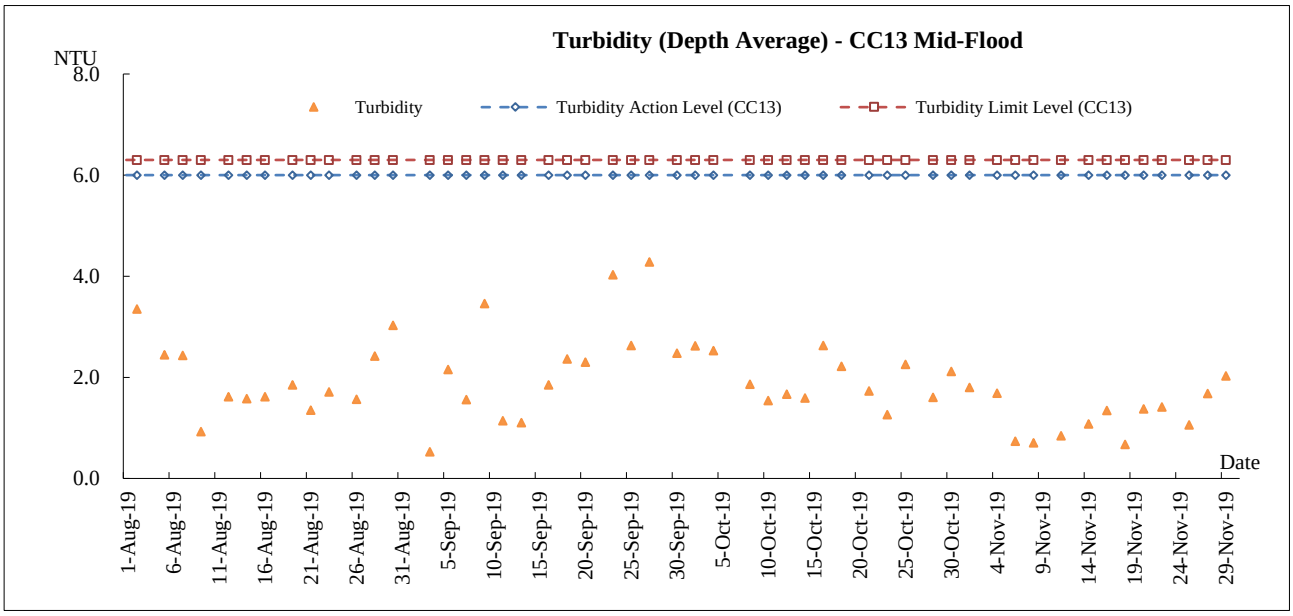


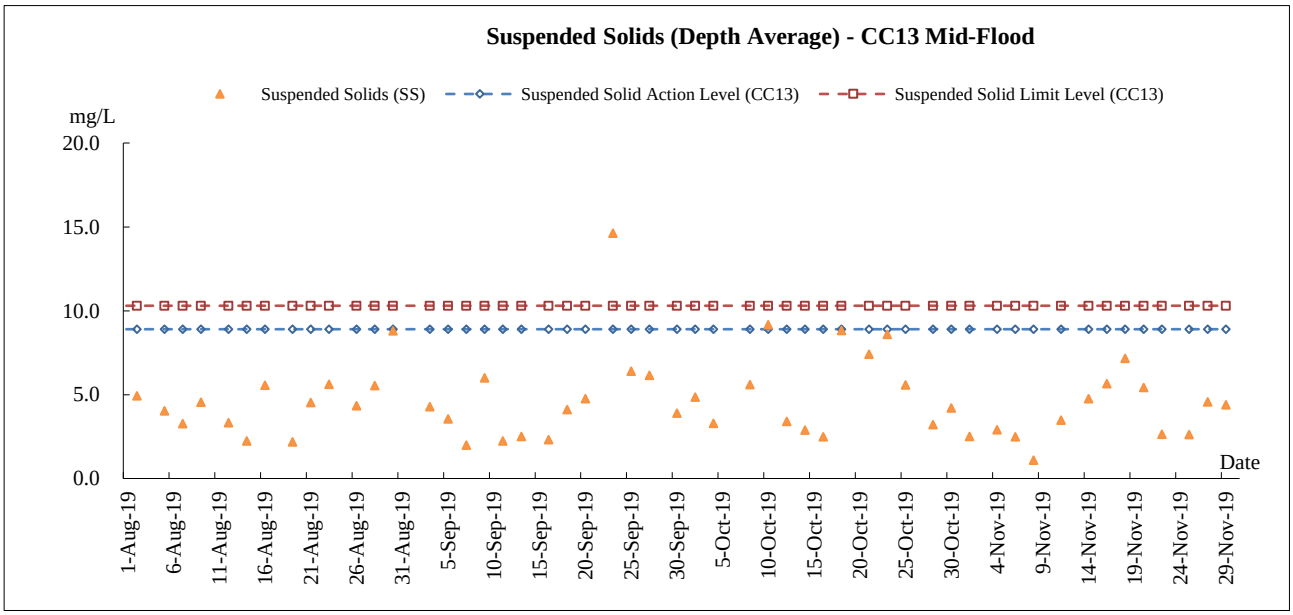




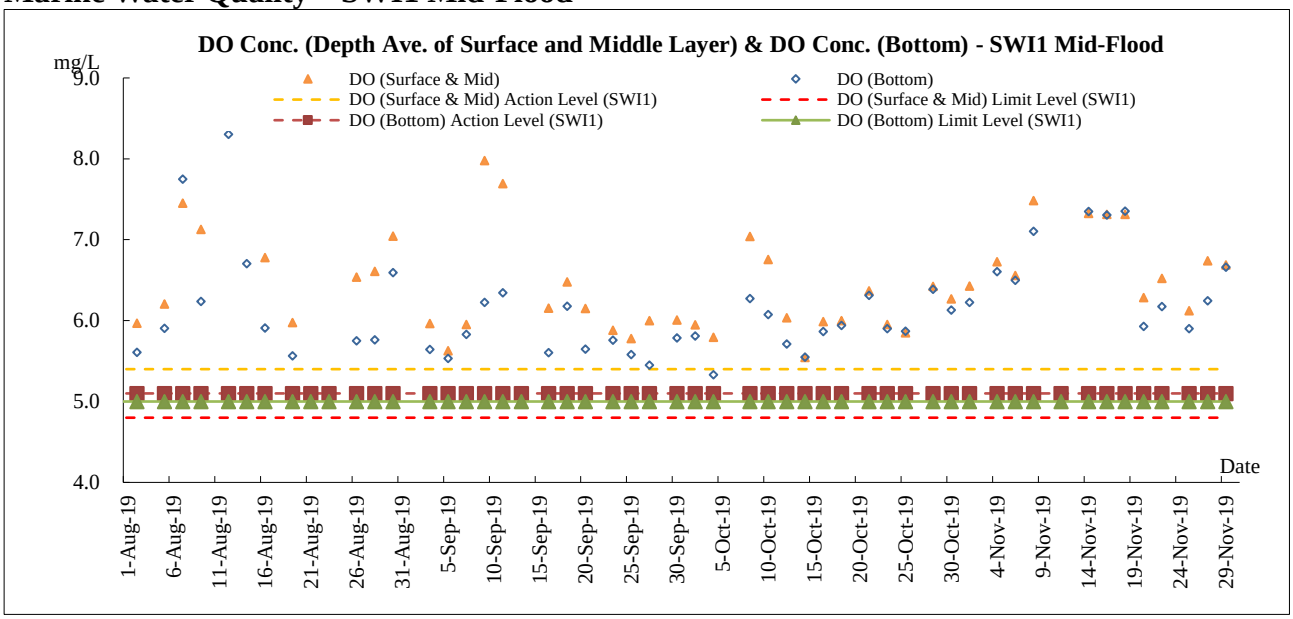
Marine Water Quality – CC13 Mid-Flood

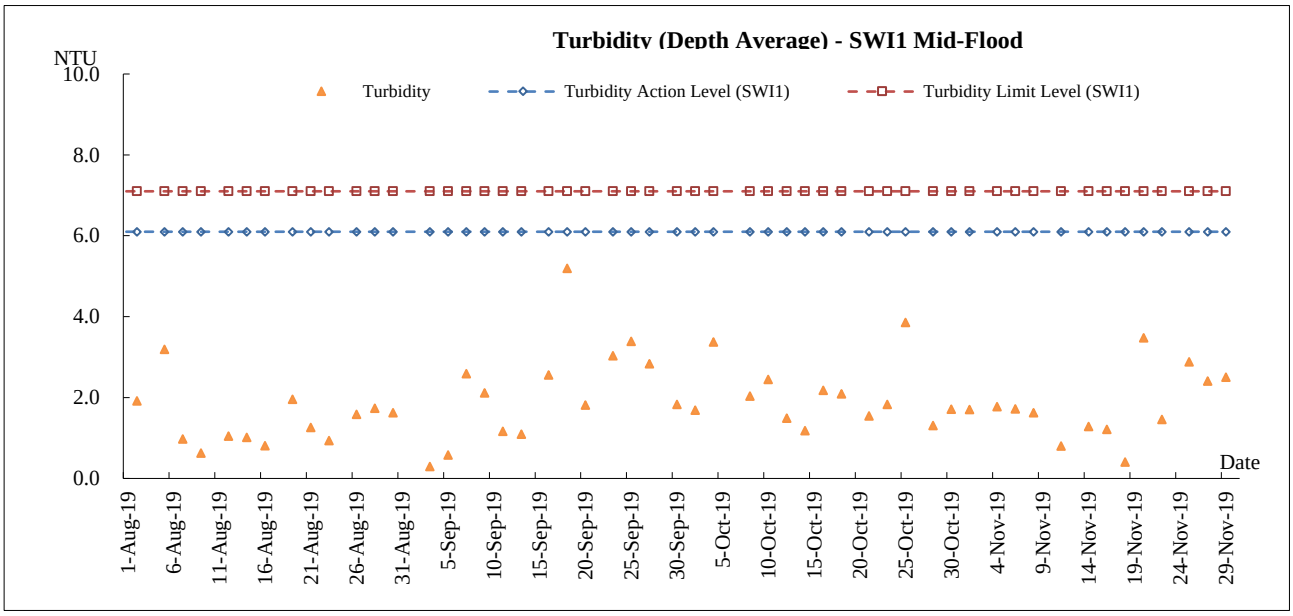


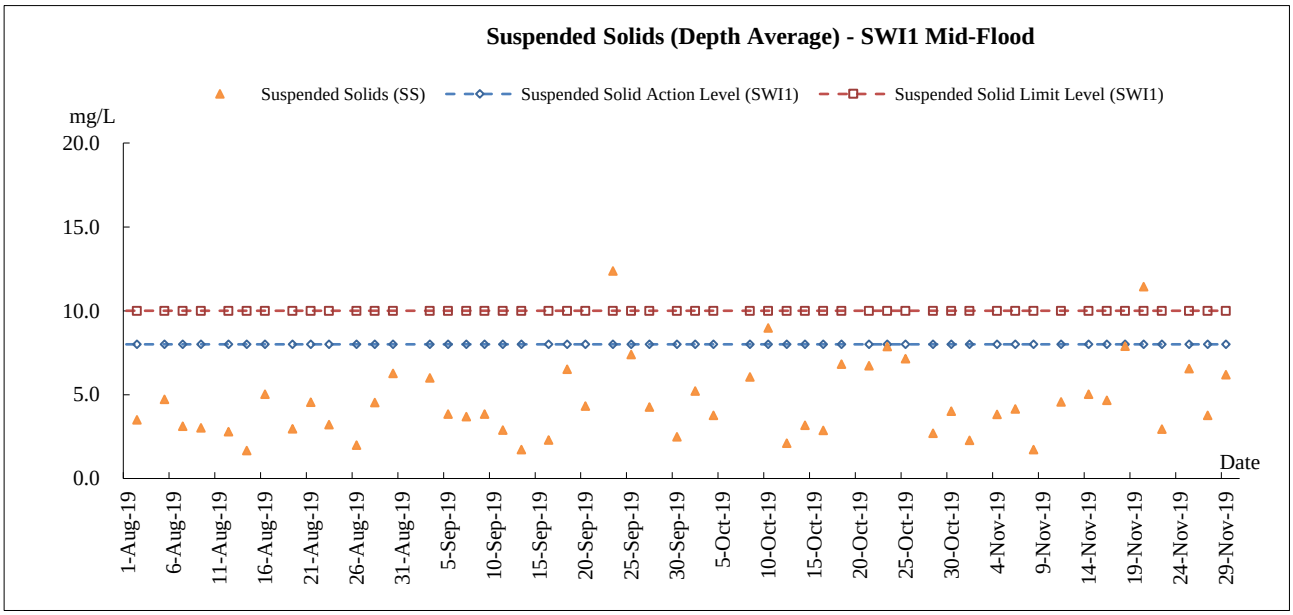




Marine Water Quality – SWI1 Mid-Flood







Appendix J

Meteorological Data

Date		Weather	Total Rainfall (mm)	Tseung Kwan O Station			
				Mean Air Temp. (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction (degree)
1-Nov-19	Fri	Fine. Very dry in the afternoon.	0	26	10.3	67	N/NE
2-Nov-19	Sat	Mainly fine. Cloudy periods tonight.	0	25.6	9.5	75.2	N/NE
3-Nov-19	Sun	Mainly fine and dry. Moderate easterly winds.	0	29	6.6	73	N/NE
4-Nov-19	Mon	Moderate to fresh northeasterly winds	0	24.7	7.9	52.5	N
5-Nov-19	Tue	Fine. Very dry in the afternoon.	0	23.2	6.1	54	E/NE
6-Nov-19	Wed	Mainly fine. Cloudy periods tonight.	0	23.7	7	65	E/NE
7-Nov-19	Thu	Mainly fine and dry. Moderate easterly winds.	0	23.1	9.6	62.5	N/NE
8-Nov-19	Fri	Mainly fine and dry. Moderate easterly winds.	0	22.8	7.5	66.2	N
9-Nov-19	Sat	Moderate northeasterly winds, occasionally fresh offshore.	0	22.2	8.2	67.2	E/NE
10-Nov-19	Sun	Mainly fine. Cloudy periods tonight.	0	22.4	6.1	64.5	E/NE
11-Nov-19	Mon	Mainly fine. Hot in the afternoon.	0	21.9	6.5	68.7	E/NE
12-Nov-19	Tue	Mainly fine. Hot in the afternoon.	0	22.7	7.9	75.0	E/NE
13-Nov-19	Wed	Isolated showers later. Light winds.	0	23.8	7.1	71.2	N/NE
14-Nov-19	Thu	Moderate easterly winds, fresh offshore later.	0	22.6	8.5	56	N/NE
15-Nov-19	Fri	Fine at first, becoming cloudy.	0	22.7	6.1	66.7	E/NE
16-Nov-19	Sat	Mainly fine. Hot in the afternoon.	0	22.2	7.2	61.5	E/NE
17-Nov-19	Sun	Isolated showers later. Light winds.	0	23.6	6.2	74	NE
18-Nov-19	Mon	Moderate easterly winds, fresh offshore later.	0	24.5	6.6	67.5	E/NE
19-Nov-19	Tue	Fine at first, becoming cloudy.	0	19.4	8.2	60	E/NE
20-Nov-19	Wed	Mainly fine. Cloudy periods tonight.	0	20.6	6.5	60.5	NE
21-Nov-19	Thu	Mainly fine. Hot in the afternoon.	Trace	21.3	5.6	62.7	E/NE
22-Nov-19	Fri	Fine. Dry during the day. Moderate northeasterly winds.	0	21.7	5.4	62.2	E
23-Nov-19	Sat	Fine at first, becoming cloudy.	0	22.8	5	65.2	E
24-Nov-19	Sun	Mainly fine. Cloudy periods tonight.	0	23.4	4.6	81	N/NE
25-Nov-19	Mon	Mainly fine. Hot in the afternoon.	0	23.4	7.1	72.7	E/NE
26-Nov-19	Tue	Fine. Dry during the day. Moderate northeasterly winds.	Trace	21.3	8.7	69	E/NE
27-Nov-19	Wed	Fine at first, becoming cloudy.	0	22.5	9	68.5	E/NE
28-Nov-19	Thu	Mainly fine. Cloudy periods tonight.	0	20.1	11.2	53	E/NE
29-Nov-19	Fri	Becoming cloudy tomorrow night.	0	19.1	83	57	NE
30-Nov-19	Sat	Moderate to fresh northerly winds	0	20.2	79	61.2	NE

Appendix K

Waste Flow Table

Contract 1

Monthly Summary Waste Flow Table for 2018 (year)

Name of Person completing the record: Kanny Cho (EO)

Project : Cross Bay Link, TKO, Main Bridge and Associated Works

Contract No.: NE/2017/07

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 m^3)
Jan											
Feb											
Mar											
Apr											
May											
Jun											
Sub-total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Jul	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aug	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.837
Sep	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.305
Oct	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.065	0.000	0.000	0.008
Nov	0.000	0.000	0.000	0.000	0.000	0.320	0.000	0.000	0.000	0.000	0.009
Dec	0.000	0.000	0.000	0.000	0.276	0.000	0.000	0.000	0.000	0.000	0.004
Total	0.000	0.000	0.000	0.000	0.276	0.320	0.000	0.065	0.000	0.000	1.163

Note:

1. For non-inert portion of C&D material, assume the density of 1 m^3 general refuse is equal to 200 kg.
2. For inert portion of C&D material, assume 6 m^3 per each full-filled dump truck.
3. All values are round off to the third decimal places.

Monthly Summary Waste Flow Table for 2019 (year)

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

Project : Cross Bay Link, TKO, Main Bridge and Associated Works Contract No.: NE/2017/07

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 m^3)
Jan	0.845	0.000	0.000	0.000	0.845	0.000	0.000	0.023	0.000	0.000	0.077
Feb	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.032	0.000	0.000	0.036
Mar	0.042	0.000	0.000	0.000	0.042	0.000	0.000	0.029	0.000	0.000	0.081
Apr	1.760	0.000	0.000	0.000	1.760	0.000	0.000	0.509	0.000	0.000	0.012
May	1.026	0.000	0.000	0.000	1.026	0.000	0.000	0.094	0.000	0.000	0.030
Jun	0.354	0.000	0.000	0.000	0.354	0.000	0.000	0.087	0.000	0.000	0.050
Sub-total	4.027	0.000	0.000	0.000	4.027	0.000	0.000	0.774	0.000	0.000	0.286
Jul	1.122	0.000	0.000	0.000	1.122	0.000	0.000	0.060	0.000	0.000	0.095
Aug	1.290	0.000	0.000	0.000	1.290	0.000	0.000	0.075	0.000	0.000	0.058
Sep	0.762	0.000	0.000	0.000	0.762	0.000	0.000	0.085	0.000	0.000	0.054
Oct	1.002	0.000	0.000	0.000	1.002	0.000	0.000	0.080	0.000	0.000	0.106
Nov	0.744	0.000	0.000	0.000	0.744	0.000	0.000	0.092	0.000	0.000	0.075
Dec											
Total	8.947	0.000	0.000	0.000	8.947	0.000	0.000	1.166	0.000	0.000	0.674

Note:

1. For non-inert portion of C&D material, assume the density of 1 m^3 general refuse is equal to 200 kg.
2. For inert portion of C&D material, assume 6 m^3 per each full-filled dump truck.
3. All values are round off to the third decimal places.

Contract 2

Monthly Summary Waste Flow Table for 2019 Year

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Borken Concrete	Reused in the Contract	Reused in other Projects	Disposal as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics (See note 3)	Chemical Waste	Other, e.g. general refuse
	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000m^3]
Jan	0.358	0.000	0.358	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.357
Feb	0.022	0.000	0.000	0.000	0.022	0.000	0.000	0.000	0.000	0.000	0.728
Mar	0.106	0.000	0.000	0.000	0.106	0.000	0.000	0.000	0.000	0.000	0.229
Apr	3.013	0.000	0.000	0.000	3.013	0.000	0.000	0.000	0.000	0.000	0.013
May	3.621	0.000	0.000	0.000	3.621	0.000	0.000	0.000	0.000	0.000	0.022
June	1.127	0.000	0.000	0.000	1.127	0.000	0.000	0.000	0.000	0.000	0.019
SUB-TOTAL	8.247	0.000	0.358	0.000	7.889	0.000	0.000	0.000	0.000	0.000	1.368
Jul	2.468	0.000	0.000	0.000	1.879	0.589	0.000	0.000	0.000	0.000	0.031
Aug	4.401	0.000	0.000	0.000	4.262	0.140	0.000	0.000	0.000	0.000	0.004
Sep	1.912	0.000	0.000	0.046	1.866	0.000	0.000	0.000	0.000	0.000	0.009
Oct	4.384	0.000	0.000	0.000	4.384	0.000	0.000	0.000	0.000	0.000	0.007
Nov	2.351	0.000	0.000	0.000	2.351	0.000	8.870	0.000	0.000	0.000	0.004
Dec											
TOTAL	23.763	0.000	0.358	0.046	22.631	0.728	8.870	0.000	0.000	0.000	1.424

Note: Conversion to 1000m^3 for general refuse is weight in 1000kg multiply by 0.002

Conversion to 1000m^3 for Inert C&D is weight in 1000kg multiply by 0.0005

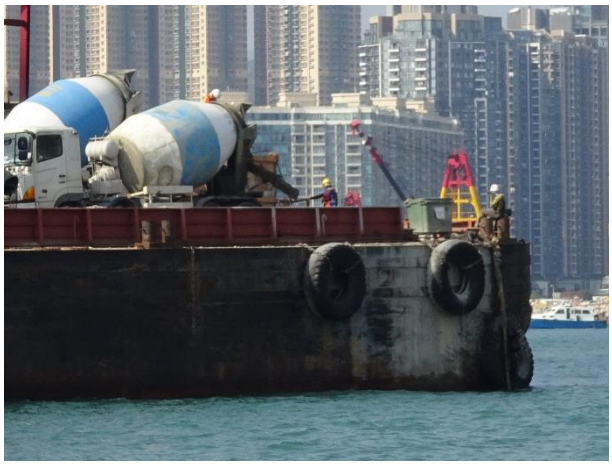
Plastics refer to plastic bottles / containers, plastic sheets / foam from packaging material

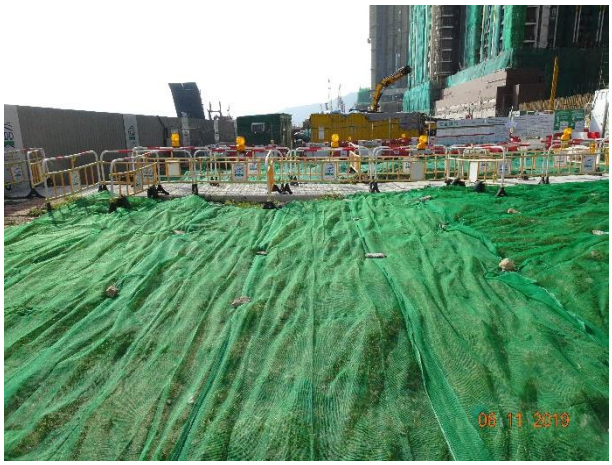
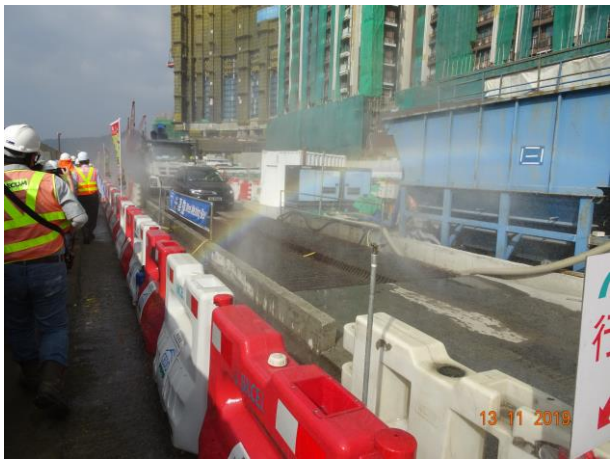
Plastics refer to plastic bottles / containers, plastic sheets / foam from packaging material

Assume the loaded volume of a dump truck for internal inert waste transfer is 17.9 m^3

Appendix L

Implementation Record of Water Mitigation Measures in the Reporting Month

Water Quality Mitigation Measures under NE/2017/07 (Contract 1)	
	
Waste skip was provided to storage the concrete washing water during concreting work.	Exposed area had been shotcrete to prevent the generation of muddy water.
	
Silt-curtain had beed provided to prevent muddy water overflow from the piling platform.	

Water Quality Mitigation Measures under NE/2017/08 (Contract 2)	
 Exposed area had been covered to prevent muddy surface run-off generation during rainstorm.	 Treatment facilities was installed at site to treat the site generated water prior discharge.
 Trench had been installed beside the sea front to prevent muddy surface run-off overflow during rainstorm.	 Gap between the concrete block and the sea front was sealed up.

Appendix M

Implementation Schedule for Environmental Mitigation Measures

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
Dust Impact (Contraction Phase)						
S5.5.5.1	Regular watering under good site practice shall be adopted. In accordance with the "Control of Open Fugitive Dust Sources" (USEPA AP-42), watering once per hour on exposed worksites and haul road is recommended to achieve dust removal efficiency of 91.7%.	Good construction site practices to control the dust impact on the nearby sensitive receivers to within the relevant criteria	All construction sites	Contractor	Construction stage	• APCO (Cap. 311); and • Air Pollution Control (Construction Dust) Regulation
S5.5.5.3	The following dust suppression measures shall also be incorporated by the Contractor to control the dust nuisance throughout the construction phase: • Any excavated or stockpiled dusty material shall be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed shall be wetted with water and cleared from the surface of roads; • A stockpile of dusty material shall not extend beyond the pedestrian barriers, fencing or traffic cones; • The load of dusty materials on a vehicle leaving a construction site shall be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet shall be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point shall be paved with concrete, bituminous materials or hardcores; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high shall be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading to the construction site that is within 30m of a vehicle entrance or exit shall be kept clear	Good construction site practices to control the dust impact on the nearby sensitive receivers to within the relevant criteria	All construction sites	Contractor	Construction stage	• APCO (Cap. 311); and • Air Pollution Control (Construction Dust) Regulation

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
	of dusty materials; • Surfaces where any pneumatic or power driven drilling, cutting, polishing or other mechanical breaking operation takes place shall be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities shall be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting shall be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport shall be totally enclosed by impervious sheeting; • Exposed earth shall be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shortcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.					
S5.5.5.4	For the barging facilities at the site compound, the following good site practice is required: • All road surfaces within the barging facilities shall be paved. • Vehicles should pass through designated wheel wash facilities. • Continuous water spray shall be installed at the loading point.	Good construction site practices to control the dust impact on the nearby sensitive receivers to within the relevant criteria	Site compound	Contractor	Construction stage	• APCO (Cap. 311); and • Air Pollution Control (Construction Dust) Regulation
S5.5.5.5	An audit and monitoring programme during the construction phase should be implemented by the Contractor to ensure that the construction dust impacts are controlled to within the HKAQO. Detailed requirements for the audit and monitoring programmes are given separately in the EM&A manual.	Monitor the 1-Hour and 24-Hr TSP levels at the representative dust monitoring stations to ensure compliance with relevant criteria throughout the construction period	Selected representative dust monitoring station (**Drawing no. 209506/EMA/ AIR/001**)	Contractor	Construction stage	• APCO (Cap. 311); and • Air Pollution Control (Construction Dust) Regulation
Noise Impact (Contraction Phase)						

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
S6.6.4.3	Good site practice and noise management techniques: • Only well-maintained plant shall be operated on-site and the plant shall be serviced regularly during the construction programme; • Machines and plant (such as trucks, cranes) that are in intermittent use shall be shut down between work periods or throttled down to a minimum; • Plant known to emit noise strongly in one direction, where possible, shall be orientated so that the noise is directed away from nearby NSRs; • Silencers or mufflers on construction equipment shall be properly fitted and maintained during the construction works; • Mobile plant shall be sited as far away from NSRs as possible and practicable; and • Material stockpiles, site office and other structures shall be effectively utilised, where practicable, to screen noise from on-site construction activities.	To minimize construction noise impact arising from the Project on the affected NSRs	All construction sites	Contractor	Construction stage	• Annex 5, TM-EIAO
S6.6.4.5-6	Use of quiet powered mechanical equipment and working methods	Reduce noise levels of plant items	All construction sites	Contractor	Construction stage	• Annex 5, TM-EIAO
S6.6.4.7	Install site hoarding at the site boundaries between noisy construction activities and NSRs	Reduce the construction noise levels at low-level zone of NSRs through partial screening	All construction sites	Contractor	Construction stage	• Annex 5, TM-EIAO
S6.6.4.8-11	Use of temporary or movable noise barriers and full enclosure for relatively fixed plant source	Screen the noisy plant items to be used at all construction sites	For plant items listed in Table 6.7 and Appendix 6.1 of the EIA report at all construction sites	Contractor	Construction stage	• Annex 5, TM-EIAO
	Implement a noise monitoring programme under the EM&A manual	Monitor the construction noise levels at the selected representative locations	Selected representative noise monitoring stations (**Drawing no. 209506/EMA/NS/001** & **209506/EMA/NS/002**)	Contractor	Construction stage	• Annex 5, TM-EIAO
S6.7.3.1	Partial enclosures along Road D9 and application of low noise surfacing material along CBL and Road D9	To minimize road traffic noise impact arising from the CBL and Road D9 on the affected NSRs	CBL and Road D9 (**Drawing no. 209506/EMA/NS/003**)	CEDD/ Contractor	During operational stage	• Annex 5, TM-EIAO

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
Water Quality Impact (Contraction Phase)						
S8.6.4.3	Marine Piling and Pile Excavation Works Marine piling and pile excavation works shall be undertaken in such a manner as to minimize re-suspension of sediments. Standard good practice measures shall be implemented, including the following requirements: • All marine piling and pile excavation works shall be conducted within a floating single silt curtain. • Mechanical closed grabs (with a size of5m3) shall be designed and maintained to avoid spillage and should seal tightly while being lifted. • Barges shall have tight fitting seals to their bottom openings to prevent leakage of material. • Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes. • Loading of barges shall be controlled to prevent splashing of dredged material to the surrounding water. Barges shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation. • Excess material shall be cleaned from the decks and exposed fittings of barges before the vessel is moved. • Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action. • All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash. • The works shall not cause foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the works site.	To control potential impacts from marine piling and pile excavation works	During marine piling and pile excavation works	Contractor	Construction stage	• TM-EIAO; and • WPCO
S8.6.4.4	Construction Site Runoff In accordance with the Practice Note for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN 1/94), construction phase mitigation measures, where appropriate, shall include the following: • The design of efficient silt removal facilities shall be based on the guidelines in Appendix A1 of ProPECC PN 1/94. The	Control potential water quality impacts from construction site run-off	All construction sites	Contractor	Construction stage	• TM-EIAO; and • WPCO

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
	detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction; • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m3 shall be covered with tarpaulin or similar fabric during rainstorms. Measures shall be taken to prevent the washing away of construction materials, soil, silt or debris into any marine water bodies; • All vehicles and plant shall be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities shall be provided at every construction site exit where practicable. Wash-water shall have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road shall be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains; • Construction solid waste, debris and rubbish on site shall be collected, handled and disposed of properly to avoid water quality impacts; • All fuel tanks and storage areas shall be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby; and • Regular environmental audit on the construction site shall be carried out in order to prevent any malpractices. Notices shall be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the meander, wetlands and fish ponds.					
S8.6.4.6	Sewage from workforce • Portable chemical toilets and sewage holding tanks shall be provided for handling the construction sewage generated by the workforce; • A licensed contractor shall be employed to provide	Control potential water quality impacts from sewage	All construction sites	Contractor	Construction stage	• TM-EIAO; and • WPCO

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
	appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.					
	Monitoring Implement a marine water quality monitoring programme under the EM&A on level of suspended solids (SS) / turbidity and dissolved oxygen (DO) shall be carried out.	Control potential water quality impacts from marine piling and pile excavation works	Selected monitoring stations (**Drawing no. 209506/EMA/WQ/001**)	Contractor	Construction station	• TM-EIAO; and • WPCO
S8.7.3.2	**Operational phase – Runoff from road surface** Proper drainage systems with silt traps and oil interceptors shall be installed, maintained and cleaned at regular intervals.	Control potential water quality impacts from road surface runoff	CBL and Road D9	Contractor	Construction and operational stage	• TM-EIAO; and • WPCO
Waste Management (Contraction Phase)						
S9.5.2	**Good Site Practices** Recommendations for good site practices: • Nomination of an approved personnel to be responsible for the implementation of good site practices, arrangements for collection and effective deposal to an appropriate facility of all wastes generated at the site; • Training of site personnel in proper waste management and chemical handling procedures; • Provision of sufficient waste disposal points and regular collection for disposal; • Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Centre; • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and • Implementation of a recording system for the amount of wastes generated/recycled and disposal sites.	Good site practices which ensure waste generated during construction phase is properly managed	All construction sites	Contractor	Construction stage	• Waste Disposal Ordinance (Cap. 54); • ETWB TCW No. 19/2005

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
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S9.5.4	**Waste Reduction Measures** Recommendations for achieving waste reduction include: • On-site reuse of any material excavated as far as practicable; • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of material and their proper disposal; • Collection of aluminum cans and waste paper by individual collectors during construction should be encouraged. Separately labelled recycling bins should also be provided to segregate these wastes from other general refuse by the workforce; • Recycling of any unused chemicals and those with remaining functional capacity as far as possible; • Prevention of the potential damage or contamination to the construction materials though proper storage and good site practices; • Planning and stocking of construction materials should be made carefully to minimize amount of waste generated avoid unnecessary generation of waste; and • Training on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling should be provided to workers.	To reduce amount of waste generated during construction phase	All construction sites	Contractor	Construction stage	• Waste Disposal Ordinance (Cap. 54); • ETWB TCW No. 19/2005
S9.5.5-6	**Storage, Collection and Transportation of Waste** Recommendations for proper storage include: • Waste such as soil should be handled and stored well to ensure secure containment; • Stockpiling area should be provided with covers and water spraying system to prevent materials from being washed away and to reduce wind-blown litter; and • Different locations should be designated to stockpile each material to enhance reuse. With respect to the collection and transportation of waste from the construction works, the following is recommended: • Remove waste in a timely manner; • Employ trucks with cover or enclosed containers for waste transportations; • Obtain relevant waste disposal permits from the appropriate	To reduce the environmental implications of improper storage	All construction sites	Contractor	Construction stage	• Waste Disposal Ordinance (Cap. 54); • ETWB TCW No. 19/2005

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
	authorities; and • Disposal of waste should be done at licensed waste disposal facilities.					
S9.5.8-11	**C&D Materials** The following mitigation measures shall be implemented in handling the waste: • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; • Disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation; • Standard formwork or pre-fabrication order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage; and • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	All construction sites	Contractor	Construction stage	• Waste Disposal Ordinance (Cap. 54); • ETWB TCW No. 19/2005 • ETWB TCW No. 06/2010
S9.5.13	**Excavated Marine Sediments** During transportation and disposal of the excavated marine sediments, the following measures shall be taken to minimize potential environmental impacts: • Bottom opening of barges should be fitted with tight fitting	To minimize potential impacts on water quality	All construction sites where applicable	Contractor	Construction stage	• ETWBTC (Works) No. 34/2002

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
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	seals to prevent leakage of material. Excess material should be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved; • Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation; • Transport barges or vessels should be equipped with automatic self-monitoring devices as specified by the DEP; and • Barges should not be filled to a level that would cause the overflow of materials or sediment-laden water during loading or transportation.					
S9.5.14-17	For those processes which generate chemical waste, the Contractor shall identify any alternatives that generate reduced quantities or even no chemical waste, or less dangerous types of chemical waste. If chemical waste is produced at the construction site, the Contractor is required to register with EPD as chemical waste producers. Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows. Containers used for storage of chemical wastes shall: • Be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; • Have a capacity of less than 450 L unless the specification have been approved by EPD; and • Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations. The storage area for chemical wastes shall: • Be clearly labelled and used solely for the storage of chemical wastes; • 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 the area, whichever is greatest;	To ensure proper management of chemical waste	All construction sites	Contractor	Construction stage	• Waste Disposal (Chemical Waste) (General) Regulation; • Code of Practice on the Packaging, Labelling and Storage of Chemical Waste

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	• Have adequate ventilation; • Be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste, if necessary); and • Be arranged so that incompatible materials are adequately separated. Disposal of chemical waste shall: • Be via a licensed waste collector; and • Be to a facility licensed to receive chemical waste, such as the CWTC which also offers a chemical waste collection service and can supply the necessary storage containers; or • Be to a re-user of the waste, under approval from EPD.					
S9.5.18	**Sewage** An adequate number of portable toilets shall be provided for the on-site construction workers. Any waste shall be transferred to a sewage treatment works by a licensed collector.	Proper handling of sewage from worker to avoid odour, pest and litter impacts	All construction sites	Contractor	Construction stage	• Waste Disposal Ordinance (Cap. 54)
S9.5.19	**General Refuse** General refuse generated on-site shall be stored in enclosed bins or compaction units separately from construction and chemical wastes. Recycling bins shall also be provided to encourage recycling. A reputable waste collector shall be employed by the Contractor to remove general refuse from the site on a daily basis separately from the construction and chemical wastes. Burning of refuse on construction sites is prohibited by law.	Minimize production of general refuse and avoid odour, pest and litter impacts	All construction sites	Contractor	Construction stage	• Waste Disposal Ordinance (Cap. 54)
S10.7.2.4	Good Site Practices – The integrity and effectiveness of all silt curtains shall be regularly inspected. Effluent monitoring should be incorporated to make sure that the discharged effluent from construction sites meets the relevant effluent discharge guidelines.	To minimize potential impacts on water quality and protect marine communities within Junk Bay	All construction sites	Contractor	Construction stage	• TM-EIAO; and • WPCO
S10.7.2.5	Site runoff control – For works on land, standard site runoff control measures will be established and strictly enforced to ensure that discharge of contaminated or silt-laden runoff into marine waters is minimized.	To minimize potential impacts on water quality and protect marine communities within Junk Bay	All construction sites	Contractor	Construction stage	• TM-EIAO; and • WPCO
S10.9.1.1	The marine water quality monitoring programme recommended in Chapter 8 of this EIA report and this EMIS would also serve to protect the marine communities inside Junk Bay.	To minimize potential impacts on water quality and protect marine	Selected monitoring stations (**Drawing no. 209506/EMA/WQ/001**)	Contractor	Construction stage	• TM-EIAO; and • WPCO

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
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		communities within Junk Bay				
S11.6.2.2	Good Site Practices: – The integrity and effectiveness of all silt curtains should be regularly inspected. Effluent monitoring shall be incorporated to make sure that the discharged effluent from construction sites meets the relevant effluent discharge guidelines.	To minimize potential impacts on water quality and protect fishery resources	All construction sites	Contractor	Construction stage	• TM-EIAO; and • WPCO
S11.6.2.3	Site runoff control - For works on land, standard site runoff control measures will be established and strictly enforced to ensure that discharge of contaminated or silt-laden runoff is minimized.	To minimize potential impacts on water quality and protect fishery resources	All construction sites	Contractor	Construction stage	• TM-EIAO; and • WPCO
S11.8.1.1	The marine water quality monitoring programme recommended in Chapter 8 of this EIA report and this EMIS would also serve to protect the fishery resources.	To minimize potential impacts on water quality and protect fishery resources	Selected monitoring stations (**Drawing no. 209506/EMA/WQ/001**)	Contractor	Construction stage	• TM-EIAO; and • WPCO
Landscape and Visual						
S13.8.1.2	The following mitigation measures should be implemented in the construction stage • CM1 – The construction area and contractor's temporary works areas should be minimized to avoid impacts on adjacent landscape. • CM2 – Reduction of construction period to practical minimum. • CM3 – Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where the soil material meets acceptable criteria and where practical. The Contract Specification shall include storage and reuse of topsoil as appropriate. • CM4 – Existing trees on boundary of the Project Area shall be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. (Tree protection measures will be detailed at Tree Removal Application stage).	Minimize effects of landscape and visual impacts	Work site/during construction	Funded and implemented by CEDD	Construction stage	

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
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	• CM5 – Trees unavoidably affected by the works shall be transplanted where practical. Trees should be transplanted straight to their final receptor site and not held in a temporary nursery. A detailed Tree Transplanting Specification shall be provided in the Contract Specification, if applicable. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme. • CM6 – Advance screen planting to proposed roads and associated structures. • CM7 – hydroseeding or sheeting of soil stockpiles with visually unobtrusive material (in earth tone). • CM8 – Screening of construction works by hoardings/noise barriers around works area in visually unobtrusive colours, to screen Works. • CM9 – Control night-time lighting and glare by hooding all lights. • CM10 – Ensure no run-off into water body adjacent to the Project Area. • CM11 – Avoidance of excessive height and bulk of buildings and structures					
S13.8.1.2	OM1 – Compensatory tree planting for all felled trees shall be provided to the satisfaction of relevant Government departments. Required numbers and locations of compensatory trees shall be determined and agreed separately with Government during the Tree Felling Application process under ETWBTC 3/2006.	Minimize effects of landscape and visual impacts	Within the site boundary of the proposed works	Funded and implemented by CEDD. Maintained by CEDD and LCSD.	Design, construction and operational stages	
S13.8.1.2	The following mitigation measures should be implemented in the operational stage: • OM2 – A continuous belt of screen planting along the roads. Planting of the belt of trees shall be carried out as advance works ahead of other site formation and building works. • OM3 – Maximise soft landscape of the site, where space permits, roadside berms /slope treatment works should be created. • OM4 – During detailed design, refine structure layout to create a planting strips along the roads to enhance greenery. • OM5 – Use appropriate (visually unobtrusive and	Minimize effects of landscape and visual impacts	CBL and Road D9/during construction and operation	Funded and implemented by CEDD. Maintained by CEDD and LCSD.	Design, construction and operational stages	

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	non-reflective) building materials and colours, and aesthetic design in built structures. • OM6 – Streetscape elements (e.g. paving, signage, street furniture, lighting etc.) shall be sensitively designed in a manner that responds to the local context, and minimizes potential negative landscape and visual impacts. Lighting units should be directional and minimize unnecessary light spill. • OM7 – Avoidance of excessive height and bulk of buildings and structures					
Landfill Gas						
S14.7.5	Precautionary measures The following guidance has been extracted from the EPD's Landfill Gas Hazard Assessment Guidance Note Guidance to ensure a robust and comprehensive set of measures to protect workers are provided. • During all works, safety procedures shall be implemented to minimize the risks of fires and explosions, asphyxiation of workers (especially in confined space) and toxicity effects resulting from contact with contaminated soils and groundwater. • Safety officers who are specifically trained with regard to LFG and leachate related hazards and the appropriate actions to take in adverse circumstances shall be present on all worksites throughout the works. • All personnel who work on site and all visitors to the site shall be made aware of the possibility of ignition of gas in the vicinity of the works, the possible presence of contaminated water and the need to avoid physical contact with it. • Those staff who work in, or have responsibility for "at risk" areas, including all excavation workers, supervisors and engineers working within the consultation zone, shall receive appropriate training on working in areas susceptible to LFG hazards. • Enhanced personal hygiene practices including washing thoroughly after working and eating only in "clean" areas shall be adopted where contact may have been made with any groundwater which is thought to be contaminated with	Health and safety of the workers	Construction sites within 250m Consultation Zone (**Drawing no. 209506/EMA/LFG/001**)	Contractor	Construction stage	• Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)

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	leachate. • Ground level construction plant shall be fitted with vertical exhausts at least 0.6m above ground level and with spark arrestors. • During piping assembly or ducting construction, all valves/seals shall be closed immediately after installation. As construction progresses, all valves/seals should be closed as installed to prevent the migration of gases through the pipeline/conduit. All piping /ducting shall be capped at the end of each working day. • Mobile offices, equipment stores, mess rooms etc. shall be located on an area which has been proven to be gas free (by survey with portable gas detectors) and ongoing monitoring shall be carried out to ensure that these areas remain gas free. Alternatively, such buildings shall be raised clear of the ground. If buildings are raised clear of the ground, the minimum, clear separation distance (as measured from the highest point on the ground surface to the underside of the lowest floor joist) shall be 500mm. However, in this case, it is highly recommended that all the site offices, equipment stores and mess rooms should be located outside the 250m Consultation Zone. • Smoking and naked flames shall be prohibited within confined spaces. "No Smoking" and "No Naked Flame" notices in Chinese and English shall be posted prominently around the construction site. Safety notices shall be posted warning of the potential hazards. • Welding, flame-cutting or other hot works may only be carried out in confined spaces when controlled by a "permit to work" procedure, properly authorized by the Safety Office. The permit to work procedure shall set down clearly the requirements for continuous monitoring of methane, carbon dioxide and oxygen throughout the period during which the hot works are in progress. The procedure shall also require the presence of an appropriately qualified person who shall be responsible for reviewing the gas measurements as they are made, and who shall have executive responsibility for suspending the work in the event of					

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	unacceptable or hazardous conditions. Only those workers who are appropriately trained and fully aware of the potentially hazardous conditions which may arise shall be permitted to carry out hot works in confined areas. • During the construction works, adequate fire extinguishers and breathing apparatus sets shall be made available on site and appropriate training given in their use.					
S14.7.6	**Landfill gas monitoring** The following monitoring shall be undertaken when construction works are carried out in confined space within the 250m Consultation Zone: • The works area shall be monitored for methane, carbon dioxide and oxygen using appropriately calibrated portable gas detection equipment. The monitoring requirements and procedures specified in Paragraphs 8.23 to 8.28 of EPD's Guidance Note shall be followed. The monitoring frequency and areas to be monitored shall be set down prior to commencement of the works. Depending on the results of the measurements, actions required will vary. As a minimum these shall encompass the actions specified in Table 14.6 of the EIA report. • When portable monitoring equipment is used, the frequency and areas to be monitored should be set down prior to commencement of the works either by the Safety Officer or by an appropriately qualified person. • All measurements shall be made with the monitoring tube located not more than 10mm from the surface. • A standard form, detailing the location, time of monitoring and equipment used together with the gas concentrations measured, shall be used when undertaking manual monitoring to ensure that all relevant data are recorded. • If methane (flammable gas) or carbon dioxide concentrations are in excess of the trigger levels or that of oxygen is below the level specified in the Emergency Management in the following section, then evacuation shall be initiated.	Health and safety of the workers	Confined space of construction sites within 250m Consultation Zone	Contractor	Construction stage	• Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)
S14.7.8-9	**Emergency management** In the event of the trigger levels specified in Table 14.6 of the EIA report being exceeded, a person, such as the Safety	Health and safety of the workers	Confined space of construction sites within 250m Consultation Zone	Contractor	Construction stage	• Landfill Gas Hazard Assessment

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements and/or Standards to be Achieved
				Agent	Stage	
	Officer, shall be nominated, with deputies, to be responsible for dealing with any emergency which may occur due to LFG. In an emergency situation the nominated person, or his deputies, shall have the necessary authority and shall ensure that the confined space is evacuated and the necessary works implemented for reducing the concentrations of gas.					Guidance Note (EPD/TR8/97)
S14.7.16	**Protection measures – Operational phase** • An assumed presence of landfill gas shall be adopted at all times by maintenance workers; • all maintenance workers inspecting any manhole shall be fully trained in the issue of LFG hazard; • any manhole which is large enough to permit to access to personnel shall be subject to entry safety procedure; • Code of Practice on Safety and Health at Work in Confined Spaces shall be followed to ensures compliance with the Factories and Industrial Undertakings (Confined Spaces) Regulations of the Factories and Industrial Undertakings Ordinance; • a strictly regulated "work permit procedure" shall be implemented and the relevant safety procedures must be rigidly followed; and • Adequate communication with maintenance staff shall be maintained with respect to LFG.	Health and safety of the workers	Utility maintenance areas within 250m Consultation Zone/during operational period	Utility companies	Operational stage	• Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97); and • Code of Practice on Safety and Health at Work in Confined Space
S14.7.17	**General recommended precautionary & protection measures – Operational phase** LGF surveillance exercise shall be undertaken by the utility companies at the utility manholes/inspection chambers. The surveillance exercise shall be undertaken for the duration of the site occupancy, or until such time that EPD agree that surveillance is no longer required and this shall be based on all the available monitoring data for methane, carbon dioxide and oxygen.	Health and safety of the workers	Utility maintenance areas within 250m Consultation Zone/during operational period	Utility companies	Operational stage	• Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97); and • Code of Practice on Safety and Health at Work in Confined Space