

JOB NO.: TCS00975/18

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

QUARTERLY ENVIRONMENTAL MONITORING AND AUDIT (EM&A) SUMMARY REPORT

(JUNE TO AUGUST 2019)

PREPARED FOR
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
(CEDD)

Date Reference No. Prepared By Certified By

12 March 2020 TCS00975/18/600/R0257v2

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Version	Date	Remarks	
1	25 September 2019	First Submission	
2	12 March 2020	Amended against IEC's comments	



Acuity Sustainability Consulting Limited – Nature & Technologies (HK) Limited Joint Venture



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

6 May 2020

Dear Sir,

Contract No. NE/2017/07 & NE/2017/08 Cross Bay Link, Tseung Kwan O Quarterly EM&A Report for June to August 2019

I refer to the email of ET concerning the Quarterly EM&A Report for June to August 2019 (Version 2) with Ref. No. TCS00975/18/600/R0257v2. 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)

Mr. Wilson CHUNG (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** This is the 3rd Quarterly EM&A report presenting the monitoring results and inspection findings for the reporting period from 1st June 2019 to 31st August 2019 (hereinafter 'the Reporting Period').

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

ES04 Environmental monitoring activities under the EM&A program in this Reporting Period are summarized in the following table.

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

Issues	Enviro	Sessions	
Air Quality	1-Hour TSF	51	
All Quality	24-Hr TSP		16
Construction Noise	Leq (30min		13
Construction Noise		Leq (5min) Evening ^(Note 1) Marine Water Sampling ^(Note 2)	
Water Quality	Marine Wat	er Sampling ^(Note 2)	38
		ET Regular Environmental Site Inspection	13
Inspection / Audit		Joint site audit with Project Consultant and IEC	3
hispection / Audit		ET Regular Environmental Site Inspection	13
	Contract 2	Joint site audit with Project Consultant and IEC	3

Note 1 Total sessions are counted by every 3 consecutive Leq5min

Note 2 Total sessions are counted by monitoring days

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES05 No air quality monitoring exceedance was recorded in this Reporting Period. No daytime construction noise monitoring exceedance was recorded while ten (10) session of evening construction noise monitoring exceedances were recorded in this Reporting Period. For water quality monitoring, three (3) Action Level and seventeen (17) Limit Level exceedances were recorded for Dissolved Oxygen while three (3) Action Level and two (2) Limit Level exceedances were recorded for Suspended Solids in the reporting period. NOEs were issued to notify EPD, AFCD, WSD, IEC, the Contractor and the Project Consultant. The statistics of environmental exceedance, NOE issued and investigation of exceedance are summarized in the following table.

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

Environmental	Monitoring	Action	Limit	Event & Action	
Issues	Parameters	Level	Level	Investigation Results	Corrective Actions
Air Ovolity	1-Hour TSP	0	0		
Air Quality	24-Hr TSP	0	0		
Construction	Leq _{30min} Daytime	0	0		
Noise	Leq _{5min} Evening	0	10	Not project related	NA
Water Onality	DO	3	17	Not project related	NA
Water Quality (Marine Water)	Turbidity	0	0		
	SS	3	2	Not project related	NA

Note: NOE - Notification of Exceedance

ES06 For evening construction noise monitoring and marine quality monitoring exceedance recorded in the reporting period, investigations were conducted and it is concluded that the exceedances were unlikely caused by the Project. Nevertheless, the Contractor was reminded to strictly follow the requirement stipulated in the applied CNP during evening works and check the implementation of silt curtain regularly to ensure no seepage of muddy water into the marine water body.

ENVIRONMENTAL COMPLAINT

No environmental complaint was recorded in this Reporting Period for the Project. The statistics ES07 of environmental complaint are summarized in the following table.

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

Donouting	Contract	Environn	Related with		
Reporting Period		Frequency	Cumulative	Complaint Nature	the Works Contract(s)
1 June 2019 –	1	0	1	NA	NA
31 August 2019	2	0	0	NA	NA

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES08 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.

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

Departing	Contract	Environn	Related with		
Reporting Period		Frequency	Cumulative	Complaint Nature	the Works Contract(s)
1 June 2019 –	1	0	0	NA	NA
31 August 2019	2	0	0	NA	NA

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

Donouting		Environm	Related with		
Reporting Period	Contract	Frequency	Cumulative	Complaint Nature	the Works Contract(s)
1 June 2019 –	1	0	0	NA	NA
31 August 2019	2	0	0	NA	NA

SITE INSPECTION BY EXTERNAL PARTIES

ES09 No site inspection was undertaken by EPD and AFCD within the Reporting Period.

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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 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.
- 1.1.4 This is the 3rd Quarterly EM&A report presenting the monitoring results and inspection findings for the reporting period from 1st June 2019 to 31st August 2019 (hereinafter 'the Reporting Period').

1.2 REPORT STRUCTURE

Section 1

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

Deciton 1	miroduction
Section 2	Project Organization and Construction Progress
Section 3	Summary of Impact Monitoring Requirements
Section 4	Impact Monitoring Results
Section 5	Waste Management
Section 6	Site Inspections
Section 7	Landfill Gas Monitoring
Section 8	Environmental Complaints and Non-Compliance
Section 9	Implementation Status of Mitigation Measures
Section 10	Conclusions and Recommendations

Introduction



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 can be referred to Monthly Report.

2.2 CONSTRUCTION PROGRESS

2.2.1 3-month rolling construction program of 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:-
 - · Pre-drilling and piling works at Portion II
 - Welding of steel bracket for precast shell installation at Portion II
 - Preparation of precast shell fabrication at Portion II
 - Precast shell fabrication at Portion II
 - Concrete Work at Portion V & Portion II
 - Piling works at Portion II

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

- 2.2.3 The major construction activities of Contract 2 undertaken in this Reporting Period are:-
 - Pre-drill Work at Portion III & VI
 - Bored Pile Work at Portion III, VI & VII
 - Wheel Washing Bay & Weight Bridge Construction at Portion VI
 - Trial Pit Work at Portion III and VI
 - UU Detection Work at Portion III
 - · Excavation Work at Portion III and VI
 - Pre-bored socket H pile at Portion VI

2.3 SUMMARY OF ENVIRONMENTAL SUBMISSIONS

- 2.3.1 All the documents required under Environmental Permit No. EP-459/2013 were submitted within the required timeframe. The details can be referred to the Monthly Report.
- 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/).



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 						
 Leq (30min) in six consecutive Leq(5 min) between 07:00-19:00 on noweekdays Supplementary information for data auditing, statistical results such as L₁₀ are shall also be obtained for reference. 							
Water Quality	 In-situ measurement – Dissolved Oxygen (DO) concentration (mg/L) & saturation (%), pH, Salinity (mg/L), Temperature (°C) 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 5) (Southeast facade)	Under Construction
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

As observed and confirmed by ET and IEC during the joint site visit on 29th August 2018, the 3.3.2 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 agreed alternative monitoring location for impact air quality and noise monitoring are summarized in Table 3-4 and illustrated in *Appendix D*.

Table 3-4 Interim alternative location for air quality and noise monitoring

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-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	Station Coordinates Easting Northing		Description
Station			Description
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

- Air quality impact monitoring frequency is as follows: 3.4.2
 - 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 DETERMINATION OF ACTION/LIMIT (A/L) LEVELS

3.5.1 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 3-6*, 3-7 and 3-8 respectively.

Table 3-6 Action & Limit Levels of Air Quality (1-Hour & 24-Hr TSP)

Monitoring Station	Action Lev	vel (μg /m³)	Limit Level (μg/m³)					
	1-Hour TSP 24-Hr TSP 1-Ho		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 = $(Average\ Baseline\ Results \times 1.3 + Limit\ level)/2$								

Table 3-7 Action and Limit Levels for Construction Noise, dB(A)

Monitoring Location	Action Level Limit Level (Leq30min)			
g · · · · ·	Time Period: 0700-1900 hours on normal weekdays			
CNMS-5	When one or more documented complaints are received	75 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 3-8 Action and Limit Levels for Water Quality

Monitoring	Depth Average of SS (mg/L)								
Station	Actio	on Level	Limit Level						
CC1	7.8	OR 120% of upstream control	9.3	OR 130% of upstream control					
CC2	9.0	station at the same tide of the same day	9.2	station at the same tide of the same day					
CC3	8.2	(Control Station C3 at Ebb tide and		(Control Station C3 at Ebb tide and					
CC4	13.8	Control Station C4 at	15.4	Control Station C4 at					
CC13	8.9	Flood tide), whichever is higher	10.3	Flood tide), whichever is higher					
SWI1	8	mg/L	10 mg/L						
3.5		Dissolved Oxy	gen (mg/L)						
Monitoring Location	Depth Average of S	Surface and Mid-depth	Bottom						
Location	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					

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Monitoring	Depth Average of SS (mg/L)							
Station	Acti	on Level	Li	imit Level				
SWI1	5.4	4.8	5.1	5.0				
Monitoring		Turbidity (NTU	()					
Location	Acti	L	imit Level					
CC1	5.8	OR 120% of	6.0	OR 130% of				
CC2	4.6	upstream control station at the same	5.5	upstream control station at the same				
CC3	4.8	tide of the same day (Control Station C3 at Ebb tide and	5.4	tide of the same day (Control Station C3				
CC4	6.1		7.1	at Ebb tide and				
CC13	6.0	Control Station C4 at Flood tide),	6.3	Control Station C4 at Flood tide),				
SWI1	6.1	whichever is higher	7.1	whichever is higher				

3.5.2 Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan as stated EM&A Manual.



4. IMPACT MONITORING RESULT

4.1 RESULTS OF AIR QUALITY MONITORING IN THE REPORTING MONTH

During the Reporting Period, 51 sessions of 1-hour TSP and 16 sessions of 24-hours TSP 4.1.1 monitoring were carried out and the monitoring results are summarized in Table 4-1. The relevant graphical plots are shown in *Appendix E*.

Table 4-1 **Summary of Air Quality Impact Monitoring Results**

Monitoring	1-h	our TSP (μg/n	n ³)	24-hour TSP (μg/m³)			
Location	Min Max Average		Min Max		Average		
AMS-1	49	106	72				
Record Date	24-Jun-19	11-Jul-19	51 events				
AMS-5				60	172	111	
Record Date				19-Aug-19	15-Jul-19	16 events	

- 4.1.2 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.
- 4.1.3 No adverse impact due to weather condition on the monitoring result was observed in reporting quarter. The summary of meteorological information for the Reporting Period is shown in Appendix F.

4.2 RESULTS OF CONSTRUCTION NOISE MONITORING

4.2.1 13 sessions of daytime construction noise monitoring and 10 sessions of evening construction noise monitoring were performed at the interim alternative location CNMS-5 in the reporting period. The noise monitoring results at interim alternative location CNMS-5 is summarized in **Table 4-2** and **Table 4-3**. The relevant graphical plots are shown in **Appendix E**.

Table 4-2 Summary of Daytime Construction Noise Impact Monitoring Results

Monitoring	Leq, $30\min(dB((A))$						
Location	Min	Max	Average				
CNMS-5	62.3	69.4	65.1				
Record Date	12-Jun-19	23-Jul-19	13 sessions				

4.2.2 All the measured daytime construction noise results were below 75dB(A) of the acceptance Furthermore, no complaint on construction noise was registered, indicating no exceedance of Action Level. No non-compliance was therefore found during the Reporting Period.

Table 4-3 Summary of Evening Construction Noise Impact Monitoring Results

Monitoring	Leq, 5min (dB((A))						
Location	Min	Max	Average				
CNMS-5	59.7	64.9	62.1				
Record Date	7-Aug-19	14-Jun-19	10 sessions				

4.2.3 A total of ten (10) session of evening noise monitoring limit level exceedances were recorded in the reporting period due to the measured results were higher than 55dB(A) of the acceptance criteria. Investigations were undertaken by ET accordingly and it was considered the exceedances recorded were unlikely due to the Project.

4.3 RESULTS OF WATER QUALITY MONITORING

4.3.1 In this Reporting Period, a total of 38 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 4-4 to 4-7 and the graphical plots are shown in Appendix E.



Table 4-4 Results Summary of Depth Average (Surface & Middle Layer) of DO (mg/L)

Tidal		CC1	CC2	CC3	CC4	CC13	SWI1	C3	C4	I1
	Average	6.7	6.5	6.7	6.6	6.7	6.9	6.4	6.3	6.7
Mid-Ebb	Min	5.1	5.2	5.4	5.3	5.2	5.4	4.6	4.8	5.3
	Max	10.2	9.2	11.3	9.6	9.6	10.4	8.2	8.4	10.3
Mid-Flood	Average	6.8	6.5	6.5	6.6	6.7	7.0	6.4	6.4	6.5
	Min	5.4	5.1	5.3	5.3	5.5	5.4	5.0	5.2	5.3
	Max	9.5	9.3	8.8	9.6	10.3	10.6	8.6	7.8	9.0

Table 4-5 Results Summary of Bottom Depth of DO (mg/L)

Tidal		CC1	CC2	CC3	CC4	CC13	SWI1	С3	C4	I1
	Average	5.6	5.4	5.4	NA	5.6	6.4	5.4	5.4	5.3
Mid-Ebb	Min	4.4	4.5	4.6	NA	4.5	5.0	4.3	4.3	4.6
	Max	7.0	6.1	6.8	NA	6.9	9.4	6.0	6.0	6.2
Mid-Flood	Average	5.6	5.4	5.3	NA	5.5	6.3	5.4	5.4	5.4
	Min	4.8	4.5	4.6	NA	4.8	4.8	4.4	4.3	4.4
	Max	7.5	6.0	6.6	NA	7.1	8.9	6.1	6.3	6.9

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.

Table 4-6 Results Summary of Depth Average of Turbidity (NTU)

Tid	al	CC1	CC2	CC3	CC4	CC13	SWI1	C3	C4	I1
	Average	1.3	1.8	1.8	1.4	1.3	1.1	1.9	1.9	1.9
Mid-Ebb	Min	0.4	0.9	0.8	0.6	0.6	0.4	0.7	0.9	0.8
	Max	3.7	3.4	3.2	3.6	4.2	3.8	3.8	3.2	5.0
	Average	1.5	1.9	2.0	1.5	1.5	1.2	1.8	1.7	1.9
Mid-Flood	Min	0.8	0.7	0.7	0.6	0.7	0.4	0.9	0.5	0.6
	Max	3.3	4.4	4.1	4.8	3.4	3.3	3.3	3.6	4.1

Table 4-7 Results Summary of Depth Average of Suspended Solids (mg/L)

Tid	al	CC1	CC2	CC3	CC4	CC13	SWI1	С3	C4	I1
	Average	4.0	4.2	4.5	4.1	4.2	4.0	4.1	4.3	4.7
Mid-Ebb	Min	1.3	1.5	2.4	1.0	1.6	1.3	1.5	1.5	2.1
	Max	9.0	7.6	9.5	9.3	8.2	8.5	9.7	7.9	7.5
	Average	4.2	4.3	4.6	4.5	4.4	3.9	4.1	4.2	4.8
Mid-Flood	Min	1.8	1.5	1.3	1.6	1.6	1.7	1.5	1.3	1.0
	Max	8.3	10.0	8.9	10.2	8.8	10.8	9.6	10.0	10.6

4.3.2 A summary of exceedances for the four parameters: dissolved oxygen (DO), turbidity and suspended solids (SS) are shown in *Table 4-8*.

Table 4-8 Summary of Water Quality Exceedance

Station	(Ave of	O f Top & depth)	(Bo	O ttom pth)		oidity h Ave)		S h Ave)	Exceed	tal ance for tation
	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL
CC1	0	2	0	2	0	0	0	0	0	4
CC2	0	2	0	2	0	0	1	0	1	4
CC3	1	1	0	2	0	0	1	1	2	4
CC4	0	2	NA	NA	0	0	0	0	0	2
CC13	1	1	0	2	0	0	0	0	1	3
SWI1	0	0	1	1	0	0	1	1	2	2
No of Exceedance	2	8	1	9	0	0	3	2	6	19



- 4.3.3 In this Reporting Period, three (3) Action Level and seventeen (17) Limit Level exceedances were recorded for Dissolved Oxygen while three (3) Action Level and two (2) Limit Level exceedances were recorded for Suspended Solids.
- 4.3.4 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 and it is concluded that the exceedances recorded in this reporting 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.



5. WASTE MANAGEMENT

5.1 GENERAL WASTE MANAGEMENT

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

5.2 RECORDS OF WASTE QUANTITIES

- 5.2.1 All types of waste arising from the construction work are classified into the following:
 - Construction & Demolition (C&D) Material;
 - Chemical Waste; and
 - General Refuse
- 5.2.2 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 5-1* and *5-2*.

Table 5-1 Summary of Quantities of Inert C&D Materials

Type of Wests	Contract		Quantity		Disposal
Type of Waste	No	Jun 2019	Jul 2019	Aug 2019	Location
Total Generated C&D	1	0.354	1.122	1.290	TKO 137
Materials (Inert) (in '000m ³)	2	1.127	2.468	4.401	1KO 137
Reused in this Project (Inert)	1	0	0	0	-
(in '000m ³)	2	0	0	0	-
Reused in other Projects	1	0	0	0	-
(Inert) (in '000m ³)	2	0	0	0	-
Disposal as Public Fill	1	0.354	1.122	1.290	TKO 137
(Inert) (in '000m ³)	2	1.127	1.879	4.262	1KO 137
Imported Fill ('000m ³)	1	0	0	0	-
imponed riii (000m²)	2	0	0.589	0.140	-

Table 5-2 Summary of Quantities of C&D Wastes

Type of Waste	Contract		Quantity		Disposal
Type of waste	No	Jun 2019	Jul 2019	Aug 2019	Location
Pagyalad Matal (1000lra)	1	0	0	0	
Recycled Metal ('000kg)	2	0	0	0	_
Recycled Paper /	1	0.087	0.060	0.075	Licensed
Cardboard Packing ('000kg)	2	0	0	0	collector
Decycled Plastic (1000lsa)	1	0	0	0	
Recycled Plastic ('000kg)	2	0	0	0	-
Chamical Wastes ('000lra)	1	0	0	0	
Chemical Wastes ('000kg)	2	0	0	0	-
C 1 D. C ((000 3)	1	0.050	0.095	0.058	NENT
General Refuses ('000m³)	2	0.019	0.031	0.004	NENT

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



6. SITE INSPECTION

Contract 1

6.1 REQUIREMENTS

6.1.1 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.

6.2 FINDINGS / DEFICIENCIES DURING THE REPORTING MONTH

6.2.1 In this Reporting Period, *13* events of weekly joint site inspection was carried out for Contract 1 to evaluate site environmental performance. The summaries of the findings during site inspection are presented in *Table 6-1* and the details of site inspection can be found in relevant EM&A monthly report.

Table 6-1 Summary of Site Observations of the Contract 1

Reporting Period			Follow-Up Status
June 2019	5, 12, 19 & 26 June 2019	8	Completed
July 2019	4, 10, 18 & 25 July 2019	5	Completed
August 2019	1, 7, 14, 22 & 28 August 2019	6	Completed

6.2.2 In the Reporting Period, no non-compliance was recorded for Contract 1; however, 19 observations were recorded during the site inspections and the major findings were related to water quality and chemical management mitigation measures. Details of the findings of the inspection in the reporting period can be referred to the Monthly EM&A Report. The findings found in the weekly site inspection were in general rectified within the specified deadlines. The environmental performance of the Project was therefore considered satisfactory.

Contract 2

6.2.3 In this Reporting Period, *13* events of weekly joint site inspection was carried out for Contract 2 to evaluate site environmental performance. The summaries of the findings during site inspection are presented in *Table 6-2* and the details of site inspection can be found in relevant EM&A monthly report.

Table 6-2 Summary of Site Observations of the Contract 2

Reporting Period	Date of site inspection	Nos. of Findings/ Deficiencies	Follow-Up Status
June 2019	5, 12, 19 & 26 June 2019	4	Completed
July 2019	4, 10, 18 & 25 July 2019	3	Completed
August 2019	1, 7, 14, 22 & 28 August 2019	3	Completed

6.2.4 In the Reporting Period, no non-compliance was recorded for Contract 2; however, 10 observations were recorded during the site inspections and the major findings were related to general housekeeping and chemical management mitigation measures. Details of the findings of the inspection in the reporting period can be referred to the Monthly EM&A Report. The findings found in the weekly site inspection were in general rectified within the specified deadlines. The environmental performance of the Project was therefore considered satisfactory.



7. LANDFILL GAS MONITORING

7.1 GENERAL REQUIREMENT

- 7.1.1 Pursuant to Section 13 of the Project's EM&A Manual, Landfill gas monitoring shall perform during construction activities 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*.
- 7.1.2 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.

7.2 LIMIT LEVELS AND EVENT AND ACTION PLAN

7.2.1 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 7-1 Actions in the Event of Landfill Gas Being Detected in Excavations

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

7.2.2 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.

7.3 LANDFILL GAS MONITORING

7.3.1 Since the major construction activities under the Project were not yet commenced within the 250m Consultation Zone of Tseung Kwan O Stage II & III Landfill, no landfill gas monitoring was undertaken by the Contractors in the Reporting Period.



8. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

8.1 Environmental Complaint, Summons and Prosecution

8.1.1 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 8-1, 8-2* and *8-3*. A summarized record of all complaints received was provided in *Appendix H*.

Table 8-1 Statistical Summary of Environmental Complaints

Donauting Davied	Contract	Enviro	nmental Complaint	Statistics
Reporting Period	Contract	Frequency	Cumulative	Complaint Nature
1 – 30 June 2019		0	1	NA
1 – 31 July 2019	1	0	1	NA
1 – 30 August 2019		0	1	NA
1 – 30 June 2019		0	0	NA
1 – 31 July 2019	2	0	0	NA
1 – 30 August 2019		0	0	NA

Table 8-2 Statistical Summary of Environmental Summons

Domontino Domina	Comtract	Enviro	Statistics	
Reporting Period	Contract	Frequency	Cumulative	Complaint Nature
1 – 30 June 2019		0	0	NA
1 – 31 July 2019	1	0	0	NA
1 – 30 August 2019		0	0	NA
1 – 30 June 2019		0	0	NA
1 – 31 July 2019	2	0	0	NA
1 – 30 August 2019		0	0	NA

Table 8-3 Statistical Summary of Environmental Prosecution

Donouting Donied	Contract	Enviro	nmental Complaint	Statistics	
Reporting Period	Contract	Frequency	Cumulative	Complaint Nature	
1 – 30 June 2019		0	0	NA	
1 – 31 July 2019	1	0	0	NA	
1 – 30 August 2019		0	0	NA	
1 – 30 June 2019		0	0	NA	
1 – 31 July 2019	2	0	0	NA	
1 – 30 August 2019		0	0	NA	



9. IMPLEMENTATION STATUS OF MITIGATION MEASURES

9.1 GENERAL REQUIREMENTS

- 9.1.1 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 I*.
- 9.1.2 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 9-1*.

Table 9-1 Environmental Mitigation Measures in the Reporting Period

Issues	Environmental Mitigation Measures
Construction	• Regularly to maintain all plants, so only the good condition plants were used
Noise	 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	• Excavated material reused on site as far as possible to minimize off-site disposal.
Chemical	 Scrap metals or abandoned equipment should be recycled if possible;
Management	• 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.



10. CONCLUSIONS AND RECOMMENDATIONS

10.1 CONCLUSIONS

- 10.1.1 This is the **3rd** Quarterly EM&A report as presented the monitoring results and inspection findings for the reporting period from **1st June 2019** to **31st August 2019**.
- 10.1.2 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, ten (10) sessions of evening 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.
- 10.1.3 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.
- 10.1.4 For water quality monitoring, three (3) Action Level and seventeen (17) Limit Level exceedances were recorded for Dissolved Oxygen while three (3) Action Level and two (2) Limit Level exceedances were recorded for Suspended Solids in the reporting period. Investigation for the cause of exceedance was carried out by ET subsequently and it is concluded that the exceedances recorded in this reporting period were unlikely caused by the Project.
- 10.1.5 No documented complaint, notification of summons or prosecution was received and recorded for the Project.

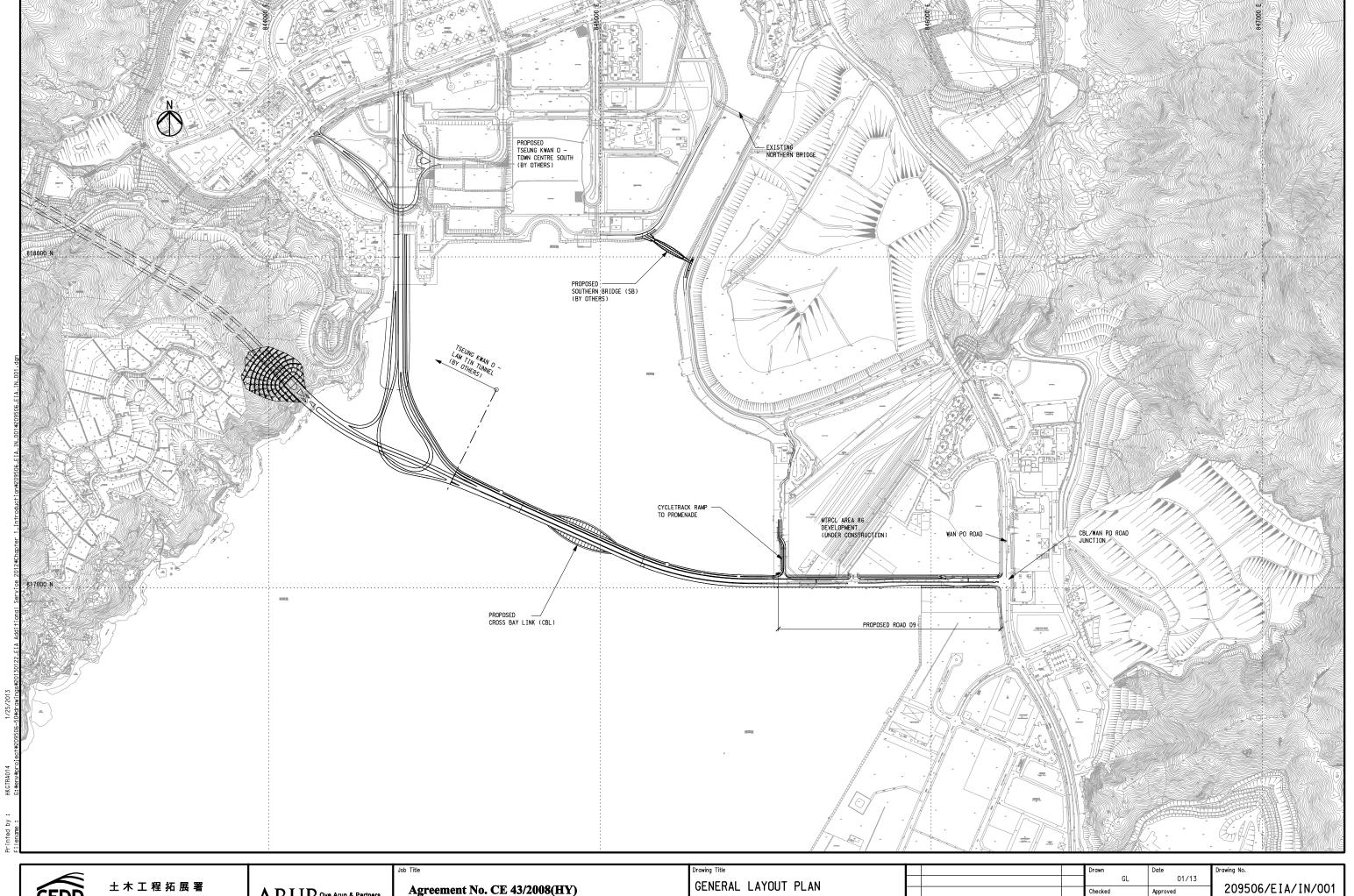
10.2 RECOMMENDATIONS

- 10.2.1 Due to wet season has approached, the Contractor was reminded that all the works to undertaking must be fulfill environmental statutory requirement, especially water quality mitigation measures to prevent surface runoff into nearby water bodies or public areas.
- 10.2.2 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

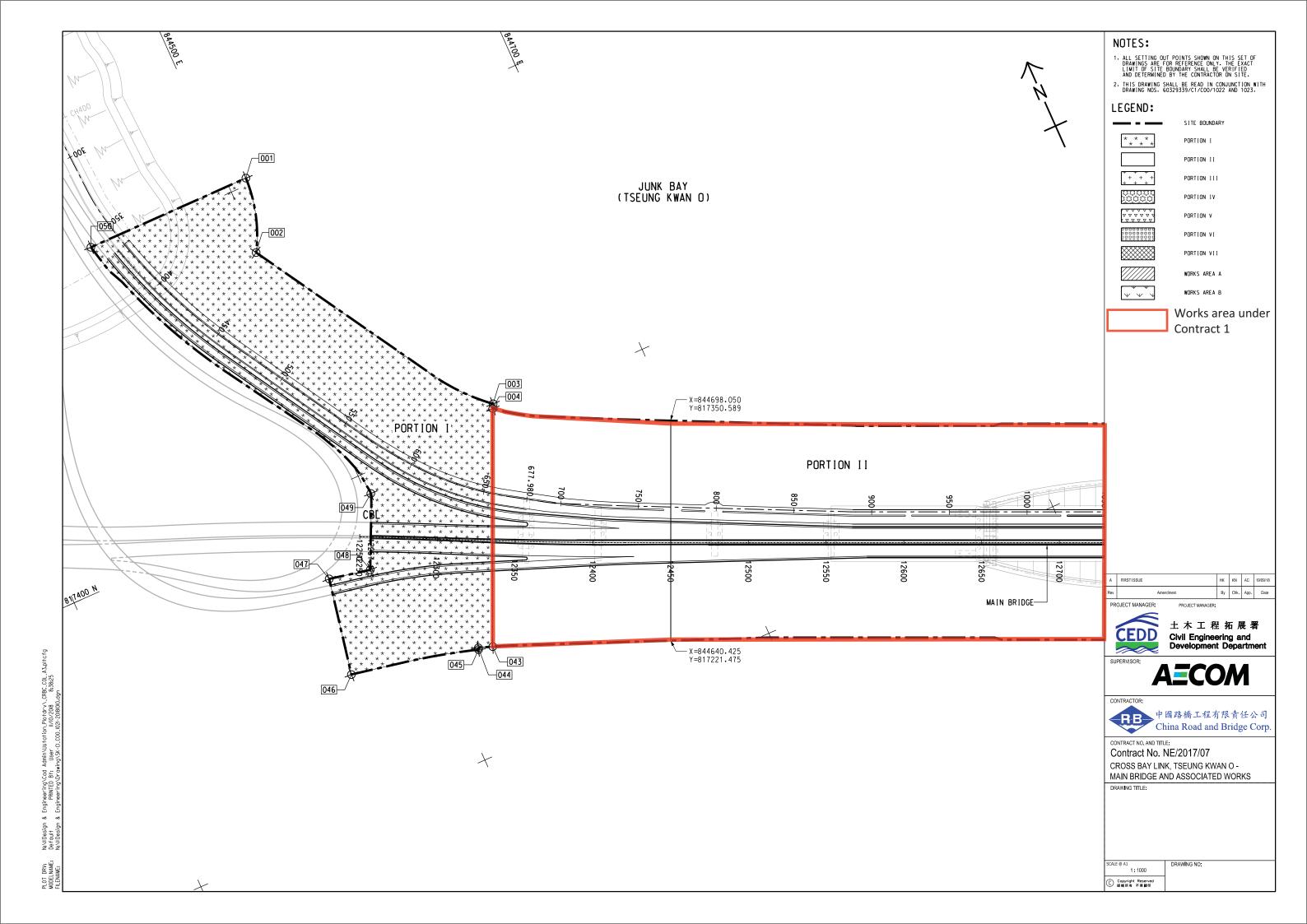


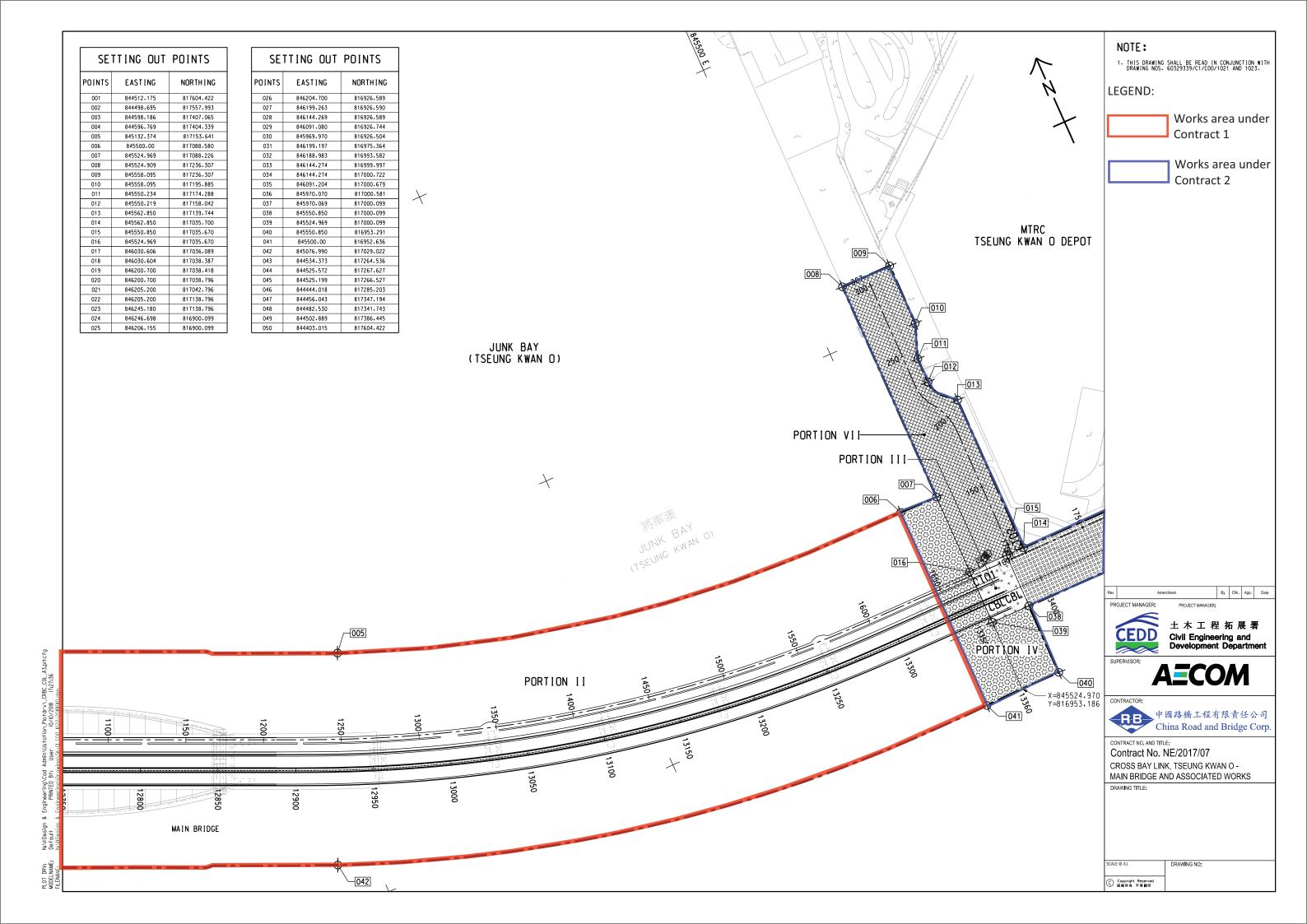
Civil Engineering and Development Department

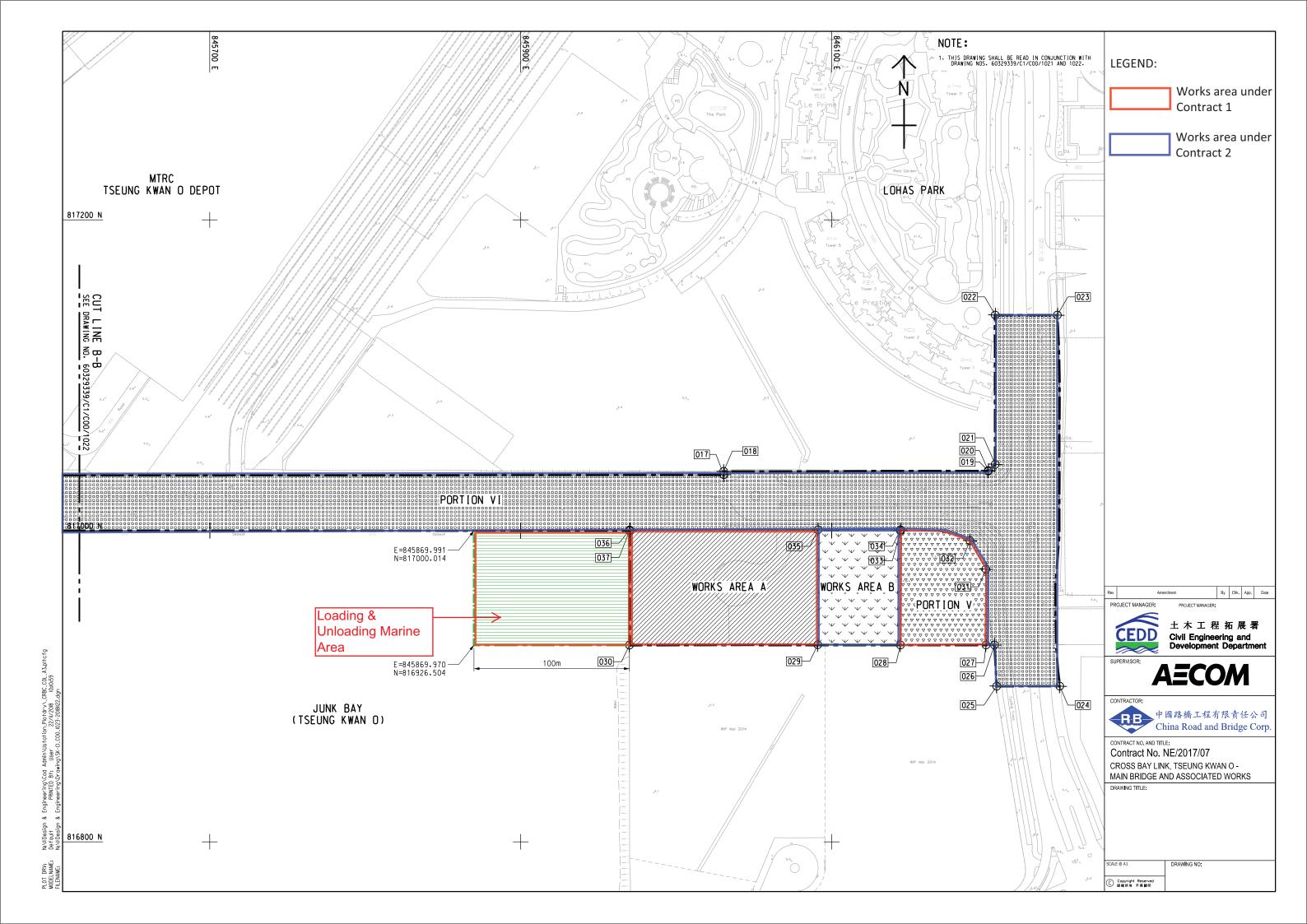
ARUP Ove Arup & Partners Hong Kong Limited

Agreement No. CE 43/2008(HY) Cross Bay Link, Tseung Kwan O – Investigation

B SECOND ISSUE A FIRST ISSUE Scale 1:5000 on A1 & 1:10000 on A3 FINAL







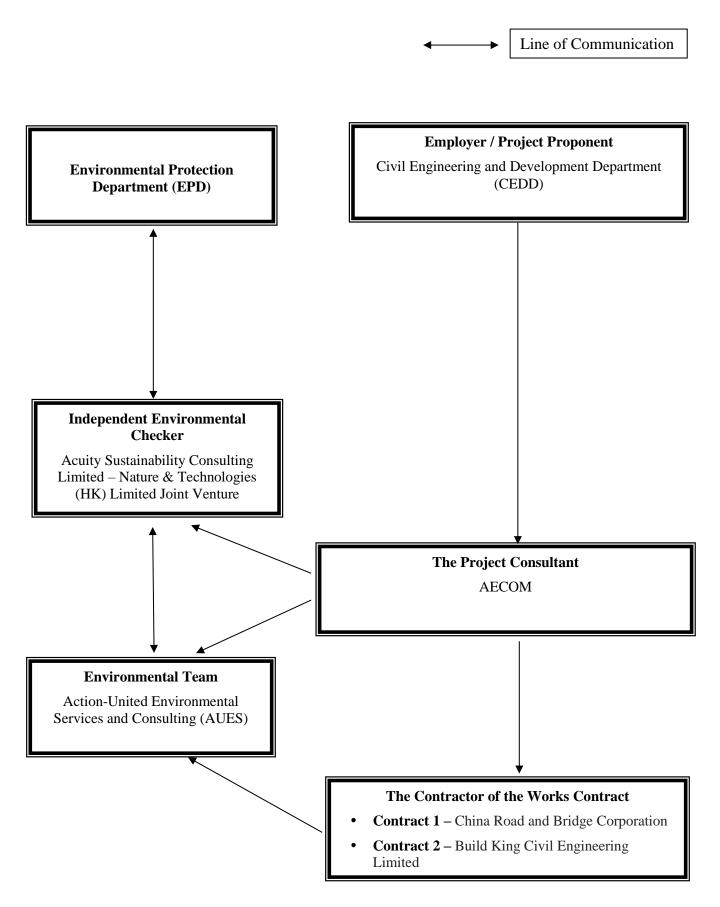


Appendix B

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	C.K. Lam	2301 1398	2714 5174
CEDD	Project Proponent	Galen Tse	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	6026 5971	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	Chris Cheng	9487 8108	TBA
Build King	Environmental Supervisor	Anthony Chan	6704 4800	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

1 Date : 08	-Aug-19	Contrac	t No. NE/201	7/07 Cros	ss Bay Link	x, Tseng K	Kwan O - M	Iain Bridg	ge and Associa	nted Works				
	ActivityName	Original R Duration	ternaining Duration Start	Planned Start	Finish	Planned Finish	Total Float Activity%	Complete TRA Varian	nce - Finish Date	August 2019	September 2019	October 2019		November 2019
ss Bay Link	l ,Tseung Kwan O Main Bridge and Associated Works Aug -19 Piling Sequen		1011 29-Jun-18 A	29-Jun-18	14-May-22	21-Jul-22	274		68 0	4 11 18 25	01 08 15 22	29 06 13	20 27 03	10 17
	nmary Programme	1484	1011 29-Jun-18 A	29-Jun-18	14-May-22	21-Jul-22	-91		68					
		1240	1011 17-Sep-18 A	28-Feb-19	14-May-22	21-Jul-22	-91		68					
	2 of Works-All Works within Portion II,III,IV and VI		-					8 47% 0	68					
ESP10920 ESP10960	CBL Main Bridge and Marine Viaduct Piling Works	1240 671	1011 17-Sep-18 A 208 17-Nov-18 A	28-Feb-19 18-Apr-19	14-May-22 02-Mar-20	21-Jul-22 16-Feb-21	-91 1 85	8.47% 0 69% 0	68 351					
ESP10980	Pile Cap	321	311 23-Jul-19 A	08-Jul-19	13-Jun-20	02-Jun-20		3.12% 0	-11					
ESP11160	E&M Works for CBL Main Bridge and Marine Viaduct	962	962 26-Sep-19	30-Sep-19	14-May-22	14-May-22	-91	0% 0	0					
	5 of the Works-All Works within Portion V (CBL E&M Plantroom)	264	150 01-Apr-19 A	16-Apr-19	04-Jan-20	16-Dec-19	32	0.400/	-19					Structural Work
ESP11260 ESP11280	Structural Works Architectural & External Works	232 55	94 01-Apr-19 A 55 11-Nov-19	16-Apr-19 25-Oct-19	09-Nov-19 04-Jan-20	03-Dec-19 16-Dec-19	28 5 32	9.48% 0 0% 0	-19					- Structural Work
	, Contractor's Design & Method Statement Submission & Approval	1105	700 29-Jun-18 A	29-Jun-18	07-Jul-21	04-Jun-21	19		-33		:		:	
ESP10400	Temporary Works Design	695	488 13-Aug-18 A	13-Aug-18	07-Dec-20	07-Jul-20	29 2	9.78% 0	-153			:		-
ESP10420	Method Statement Submission for Major Construction Works	736	532 27-Aug-18 A	27-Aug-18	20-Jan-21	31-Aug-20		7.72% 0	-142		:	:		
ESP10440 ESP10460	Contractor's Design Submission and Approval Alternative Design Submission and Approval	869 397	629 06-Aug-18 A 7 07-Aug-18 A	06-Aug-18 07-Aug-18	27-Apr-21 14-Aug-19	21-Dec-20 07-Sep-19		7.62% 0 8.24% 0	-127 24	Alternative Design S	ubmission and Approval			
ESP10480	General Submission	843	438 29-Jun-18 A	29-Jun-18	18-Oct-20	18-Oct-20	58 4	8.04% 0	0				:	
ESP10500	Project Manager's Acceptance of Subcontractors	556	208 14-Aug-18 A	21-Feb-19	02-Mar-20	29-Aug-20		2.59% 0	180					
ESP10560 ESP10600	Procurement, Factory Acceptance Test, Delivery and Temporary Storage of Major E&M Equipment Precasting of Precast Shell	637 745	637 10-Oct-19 524 08-Nov-18 A	10-Oct-19 28-Apr-19	07-Jul-21 12-Jan-21	04-Jun-21 11-May-21	-17 155 2	0% 0 9.66% 0	-33 119					
ESP10620	Fabrication of Precast Box Girder	713	528 10-Nov-18 A	13-May-19	16-Jan-21	24-Apr-21	21 2	5.95% 0	98		<u>.</u>	: 		
ESP10640	Fabrication of Steel Arch Bridge and Side Spans	623	483 28-Mar-19 A	08-Apr-19	02-Dec-20	20-Dec-20	-34 2	2.47% 0	18	EW, NCE, CE and PMI	1	1		
V, NCE, CE		0	0 18-Jan-19 A		08-Aug-19		1285			EW, INCE, CE and PMI				
arly Warnin		0	0 18-Jan-19 A		15-Jul-19 A				ng EW					
EW0341	EW014 - No Early access to Contract Road P2 and Contract 6	0	0 18-Jan-19 A					100%						
EW0361 EW0381	EW015 - Delay due to design and Production of the Mastic Asphalt and the 11mm Stone Mastic Asphalt EW016 - Delay due to Late Subcontracting Work for Main Arch Bridge and Steel Side Span	0	0 18-Jan-19 A 0 15-Feb-19 A					100% 100%			: !	: !		
EW0381 EW0401	EW010 - Delay due to Late Subcontracting work for Main Arch Bridge and Steel Side Span EW017 - Late Issuance of Operating License of 1000t Crane Bridge for Precast Shell Installation	0	0 14-Jun-19 A					100%	t Crane Bridge fo	r Precast Shell Installation				
EW0421	EW018 - Cable Hanger Connection Details	0	0 28-Jun-19 A					100%	on Details		g			
EW0441	EW019 -Transportation and Erection of Steel Bridge in Typhoon Season	0	0 15-Jul-19 A		09 Aug 10			100%	ansportation and I	rection of Steel Bridge in Typh Notification of Compensation		:		
	of Compensation Event NCE	0	0 11-Jun-19 A		08-Aug-19		1285		D	1				
NCE0441 NCE0461	NCE023 - Testing of Prestressing Strands, Bolts and Nuts - Duration Required by the Public Works Laborato NCE024 - Change in Works Information arisen from Project Manager's Response to Request for Information		0 11-Jun-19 A 0 12-Jun-19 A					100% 100%		red by the Public Works Labor esponse to Request for Information				
NCE0501	NCE026 - Inconsistency in strength requirement of grout used to fill core holes (RFI-00207)	0	0 14-Jun-19 A					100%		re holes (RFI-00207)				
NCE0521	NCE027 - Change in Works Information arisen from Project Manager's Responses to Requests for Information	io 0	0 19-Jun-19 A					100%		nager's Responses to Requests				
NCE0541	NCE028 - Inconsistency among Works Information with respect to civil works provisions for TCSS (RFI-00		0 17-Jul-19 A					100%			espect to civil works provisions for TCS sponses to Requests for Information (RF			
NCE0561 NCE0581	NCE029 - Change in Works Information arisen from Project Manager's Responses to Requests for Informati NCE030 - Weather Conditions (Rainstorm Warnings) affecting the Site in June 2019	0	0 04-Jul-19 A 0 08-Aug-19				1285	0%			is (Rainstorm Warnings) affecting the Si			
NCE0601	NCE031 - Increased Premium of Employees' Compensation Insurance	0	0 15-Jul-19 A					100%	ncreased Premiur	n of Employees' Compensation	Insurance			
NCE0621	NCE032 - Addition of B283 mesh to all exposed face of draw pit (RFI-00068A)	0	0 17-Jul-19 A					100%		3 mesh to all exposed face of d		70.4.		
NCE0641	NCE033 - Revised Setting - out of Box Girder W5-W4 (Response to RFI-00079A)	0	0 01-Aug-19 A 0 11-Jul-19 A		05-Aug-19 A			100%		ompensation Event (CE)	x Girder W5-W4 (Response to RFI-000)	(9A)		
-	CROID Flytonic City Investige System (FSIS)	0			03-Aug-19 A			1000/	1	ection System (ESIS)				
CE0161 CE0181	CE010 - Electronic Site Inspection System (ESIS) CE011 - Deeper Rockhead Level as Revealed by Marine GI (PD-E1-P8)	0	0 16-Jul-19 A 0 11-Jul-19 A					100% 100%		s Revealed by Marine GI (PD-	: E1-P8)			
CE0201	CE012 - Provision of Additional Office Equipment and Computer Facilities for Additional Resident Site Staff	f 0	0 16-Jul-19 A					100%	rovision of Additi	onal Office Equipment and Cor	nputer Facilities for Additional Resident			
CE0221	CE013 - Determination of Bond Property of Steel Reinforcing Bars by Surface Geometry Duration	0	0 27-Jul-19 A					100%			Steel Reinforcing Bars by Surface Geon			
CE0241 CE0261	CE014 - Testing of Stainless Steel Reinforcing Bars Duration Required at the Public Works Laboratories CE015 - Change in Works Information arisen form Project Manager's Response to Request for Information (D 0	0 23-Jul-19 A 0 05-Aug-19 A					100% 100%			s Duration Required at the Public Work nation arisen form Project Manager's Re		ation (RFI-00128)	
CE0201	CE016 - Testing of Couplers to AC133 Duration Required at the Public Works Laboratories	0	0 05-Aug-19 A					100%			C133 Duration Required at the Public V		(141 00120)	
CE0301	CE017 - Testing of Prestressing Strands, Bolts and Nuts - Duration Required by the Public Works Laboratori		0 05-Aug-19 A					100%	• c	E017 - Testing of Prestressing S	strands, Bolts and Nuts - Duration Requi	ired by the Public Works Lab	oratories	
ocurement,	Factory Acceptance Test, Delivery and Temporary Storage of Major E&M Equip	45	45 10-Oct-19	10-Oct-19	30-Nov-19	30-Nov-19	15		0			,		
rocurement		45	45 10-Oct-19	10-Oct-19	30-Nov-19	30-Nov-19	15		0			·		
P-PC10120	Procurement of LV Switch Board	45	45 10-Oct-19	10-Oct-19	30-Nov-19	30-Nov-19	15	0% Procu	0				:	
	Procurement of Genset	30	30 10-Oct-19	10-Oct-19	13-Nov-19	13-Nov-19	15	0% Procu	0					Procureme
	Contractor's Design & Method Statement Submission & Approval	353	231 28-Mar-19 A	08-Apr-19	25-Mar-20	25-Mar-20	83		0					
emporary W	orks Design	239	198 06-Jun-19 A	21-Jun-19	25-Mar-20	25-Mar-20	71		0					
TDS2010	Formwork design for V-shaped pier and crossbeam construction (incl. 21 days TRA)	63	11 06-Jun-19 A	21-Jun-19	20-Aug-19	02-Sep-19		2.54% Design	11		Formwork design for V-shaped pier		(incl. 21 days TRA) ork design for V-shape	ad mion and a
TDS2020 TDS2080	Temporary falsework design for V-shaped pier and crossbeam construction (incl. 21 days TRA) Design of lifting frame for full-span lifting of precast box girder (incl. 35 days TRA)	36 63	36 27-Aug-19 63 10-Sep-19	03-Aug-19 10-Sep-19	07-Oct-19 21-Nov-19	07-Oct-19 21-Nov-19	21 178	0% Design 0%	0			1 emporary falsew	ork design for V-shape	ed pier and crossbea
TDS2080 TDS2140	Design of inting frame for fun-span ming of precast oox grider (incl. 35 days TRA) Design of temporary works for superstructure of steel bridge (incl. 35 days TRA)	141	141 14-Oct-19	14-Oct-19	25-Mar-20	25-Mar-20	70	0%	0				: -	
TDS2160	Steel mould design for precast segments of TKOI viaducts (incl. 21 days TRA)	63	63 08-Aug-19	08-Jul-19	19-Oct-19	18-Sep-19	-14	0% Design	-27			St	eel mould design for p	recast segments of
TDS2180	Design of Pier bracket for erection of pier-head segments (incl. 21 days TRA)	56 185	56 21-Oct-19	19-Sep-19	24-Dec-19 27-Nov-19	22-Nov-19 26-Oct-19	-14 172	0%	-27					
	ment Submission for Major Construction Works	185	96 28-Mar-19 A	26-Apr-19			172	7 (10/	27	Made	statement submission for geometry con	strol (incl. 21 down TD A)		
MDS1135 MDS1140	Method statement submission for geometry control (incl. 21 days TRA) Method statement submission for assembly of steel arch bridge (incl. 35 days TRA)	67 96	15 28-Mar-19 A 96 08-Aug-19	26-Apr-19 08-Jul-19	24-Aug-19 27-Nov-19	12-Jul-19 26-Oct-19	-8 7 172	7.61% struction 0% struction	-57 -27	ivietnoo		inor (incl. 21 days TRA)		
	Design Submission and Approval	241	169 15-Apr-19 A	28-May-19	23-Jan-20	23-Jan-20	4	070 MUCUOII	0					-
CDS1040	Design of arch rib inspection cradle + Under bridge gantry	86	86 08-Aug-19	30-Sep-19	15-Nov-19	07-Jan-20	-35	0% 0	45		<u> </u>			
CDS1060	Design of access facilities (incl. 14 days TRA)	125	42 05-May-19 A	28-May-19	25-Sep-19	19-Oct-19	1	66.4% Design	21		· · · · · · · · · · · · · · · · · · ·	De	esign of access facilities	s (incl. 14 days TR
CDS1080	Design of Tuned Mass Damper(TMD) (incl. 7 days TRA)	150	83 15-Apr-19 A	08-Jul-19	12-Nov-19	28-Dec-19		4.67% Design	40		:	:	1	
CDS1100 CDS1160	Design of de-humidification system Design of Electrical system for the E&M plant room	83 100	83 10-Oct-19 100 30-Sep-19	10-Oct-19 30-Sep-19	14-Jan-20 07-Jan-20	14-Jan-20 07-Jan-20	-33 -38	0% 0 0% 0	0					
CDS1180	Design of Electrical system for the E&M plant room Design of Building Services system for the E&M plant room	100	100 30-Sep-19 100 10-Sep-19	10-Sep-19	18-Dec-19	18-Dec-19	-38	0% 0	0			:		
CDS1200	Design of Structural health monitoring system (incl. 14 days TRA)	172	145 12-Jun-19 A	08-Jul-19	23-Jan-20	23-Jan-20	3	15.7% Design	0	, , , , , , , , , , , , , , , , , , ,		:		
Iternative D	esign Submission and Approval	111	6 30-Mar-19 A	08-Apr-19	14-Aug-19	14-Aug-19	125		0	-	ubmission and Approval			
	DDA submission for bridge deck of entrusted works of TKOI Viaduct (incl. 35 days TRA)	111	6 30-Mar-19 A	08-Apr-19	14-Aug-19	14-Aug-19		4.59% Design	0	DDA submission for	bridge deck of entrusted works of TKO	OI Viaduct (incl. 35 days TRA)		C
	Submission, Subcontracting and Procurement	205	83 28-Mar-19 A	08-Apr-19	29-Oct-19	29-Oct-19	231		0				▼ Preliminari	ies,Submission, Sub
General Sub		140	38 28-Mar-19 A	08-Apr-19	14-Sep-19	25-Aug-19	-30		-20		General Submission	:		
	Steel main bridge shop drawings submission and approval (incl. 7 days TRA)	140	38 28-Mar-19 A	08-Apr-19	14-Sep-19	25-Aug-19		2.86% Design	-20		Steel main bridge sl	hop drawings submission and		
	ger's Acceptance of Subcontractors	102	83 19-Jul-19 A	15-Jul-19	29-Oct-19	29-Oct-19	231	00/ 73.51	0	Transportation on 1 :	of proceed how sinder		• Project Ma	nager's Acceptance
P-SP1400 P-SP1440	Transportation and installation of precast box girder Transportation and installation of steel side spans and steel arch bridge	0	0		08-Aug-19	30-Jul-19 31-Jul-19	99	0% PMAS 100% PMAS	-8	 Transportation and installation Transportation and installation of 	n of precast box girder if steel side spans and steel arch bridge			
	R.C. structure for pilecap,pier and in-situ deck	0	0		06-Aug-19 A 01-Aug-19 A	31-Jul-19 15-Jul-19		100% PMAS 100% PMAS		ructure for pilecap, pier and in-s				
- 31 1500			<u> </u>	'		12 000 17				* ***				
Rem	aining Level of Effort Remaining Work ♦ ♦ M	1ilestone				CDDC				Date	Revision		Checked	Approv
						CRBC			08-/	Aug-19 Monthly	updated on 8 Aug 2019			
Prim	ary Baseline Critical Remaining Work	Summary		т	hree Mont	h Ralling	Programm	16	100		, , , , , , , , , , , , , , , , , , , ,	+		+
Actua	al Work			1	mice Mull	n ronnig	. rogramm		<u> </u>	1				
- Acidi	ALTYON V DASCIII IC IVIIICSIUI IC													_

Date : 08-Aug-19	Contract No. NE/2017/07 Cross Bay Link, Tseng Kwan O - Main Bridge and Associated Works												
ActilyNene	Original Rem	naining Duration Start	Planned Start	Finish	Planned Finish	Total Float	Activity%Complete TRA Variance-FinishDa	August2	2019	September 2019	ctober 2019	November 2019	
P-SP1540 Waterproofing Works	0	0		30-Sep-19	30-Aug-19	260	0% PMAS -3	28 04 11	18 25	01 08 15 22 29 06 Waterproofing	Vorks	10 17	
P-SP1560-0 Supply and installation of steel parapet and sign gantry	0	0		29-Oct-19	29-Oct-19	-75	0% PMAS			S		installation of steel p	
P-SP1600 Supply and installation of under bridge mobile gantry P-SP1620 Design, supply and installation of arch inspection cradle	0	0		19-Jul-19 A 19-Jul-19 A	29-Sep-19 29-Sep-19		100% PMAS 7. 100% PMAS 7.				lation of under bridge mobile gant d installation of arch inspection cr		
P-SP1680 Design, supply and installation of SCADA (SP-021)	0	0		29-Sep-19	29-Sep-19	-45	0% PMAS			Design, supply at	d installation of SCADA (SP-021))	
P-SP1700 Electrical installation works for CBL Main bridge and Marine Viaduct (SP-021)	0	0		29-Sep-19	29-Sep-19	-45	0% PMAS				tion works for CBL Main bridge a for E&M plantroom(SP-021)	nd Marine Viaduct	
P-SP1760 Building services for E&M plantroom(SP-021) asting & Fabrication Works	297	167 08-Dec-18 A	08-Apr-19	29-Sep-19 21-Jan-20	29-Sep-19 24-Jan-20	-38 77	0% PMAS			S Dunding Services	Tot Excivi pianuooni(31-021)		
prication of Precast Shell and Precast Segments	175	140 25-Jul-19 A	08-Jul-19	25-Dec-19	29-Dec-19	97							
recast Shell	175	140 25-Jul-19 A	08-Jul-19	25-Dec-19	29-Dec-19	97			····				
CBL - Batch 2 (4nos.)	75	75 08-Aug-19	08-Jul-19	21-Oct-19	20-Sep-19	11	3				CBL - Batch 2 (4nos.))	
P-PS3135 Fabrication of Shell E1 (1/2) + Modification of Casting Bed (2 weeks)	55	55 08-Aug-19	08-Jul-19	01-Oct-19	31-Aug-19	11	0% struction -3			Fabrication of	Shell E1 (1/2) + Modification of C		
P-PS3137 Fabrication of Shell E1 (2/2) + Modification of Casting Bed (2 weeks)	55	55 28-Aug-19	28-Jul-19	21-Oct-19	20-Sep-19	11	0% struction -3			:	Fabrication of Shell E	1 (2/2) + Modificat	
CBL - Batch 3 (4nos.)	69	69 04-Aug-19 A	16-Sep-19	24-Dec-19	23-Nov-19	84 51	-3	· · ·				Fabrication	
P-PS3068 Fabrication of Shell W1 (1/2) P-PS3069 Fabrication of Shell W1 (2/2)	28	28 17-Oct-19 28 09-Nov-19	16-Sep-19 09-Oct-19	13-Nov-19 06-Dec-19	13-Oct-19 05-Nov-19	51	0% -3 0% -3					Tabrication	
P-PS3138 Fabrication of Shell E2	28	28 04-Aug-19 A	27-Oct-19	24-Dec-19	23-Nov-19	84	0% -3				-		
CBL - Batch 4 (2nos.)	28	0 25-Jul-19 A	02-Dec-19	08-Aug-19 A	29-Dec-19		14	CBL - Bat	tch 4 (2nos.)				
P-PS3142 Fabrication of Shell W4 CBL - E1 and W1 Side Shells (4nos.)	28 140	0 25-Jul-19 A 140 08-Aug-19	02-Dec-19 15-Jul-19	08-Aug-19 A 25-Dec-19	29-Dec-19 01-Dec-19	104	100% 14.						
P-PS9010 Casting Bed Preparation for Side Shells (small) - Additional Casting Beds	60	60 08-Aug-19	15-Jul-19	06-Oct-19	12-Sep-19	70	0% struction -2			Casting	Bed Preparation for Side Shells (s		
P-PS9020 Fabrication of Side Shells (small) x2 Sides E1	40	40 07-Oct-19	13-Sep-19	15-Nov-19	22-Oct-19	70	0% -24					Fabricat	
P-PS9040 Fabrication of Side Shells (small) x2 Sides W1	40	40 16-Nov-19	23-Oct-19	25-Dec-19	01-Dec-19	104	0% -24						
prication of Precast Box Girder	225	153 08-Dec-18 A	28-May-19	07-Jan-20	01-Jan-20	46	600/	i	<u> </u>	Softwar I in Democrating V	ard for Box Girder - Stage 2 (Stor	ane)	
BG1415 Setting Up Precasting Yard for Box Girder - Stage 2 (Storage) BG1435 Design, Procurement and Delivery of Structure Health Monitoring Sensors for Box Griders	120 80	48 08-Dec-18 A 30 12-Jun-19 A	28-May-19 08-Jul-19	24-Sep-19 06-Sep-19	24-Sep-19 25-Sep-19	151 21	60% struction 62.5% imercial				ard for Box Girder - Stage 2 (Stor ind Delivery of Structure Health M		
ox Girder Fabrication - 1st Batch (8 Pieces)	218	153 28-May-19 A	04-Jun-19	07-Jan-20	01-Jan-20	21	-			· · · · · · · · · · · · · · · · · · ·		-	
P-BG1381 Fabrication of Precast box girder, Including Cast-in Items and Prestressing -Span W4-W5(North)	75	31 28-May-19 A	04-Jun-19	07-Sep-19	17-Aug-19	47	58.67% struction -2		·	Fabrication of Precast box girder, Including Co			
P-BG1382 Fabrication of Precast box girder, Including Cast-in Items and Prestressing -Span E4-E5(North) P-BG1383 Fabrication of Precast box girder, Including Cast-in Items and Prestressing -Span W3-W4(South)	75 75	46 05-Jun-19 A 75 11-Aug-19	08-Jul-19 05-Aug-19	22-Sep-19 24-Oct-19	20-Sep-19 18-Oct-19	28 21	38.67% struction			Fabrication of Precast box	girder, Including Cast-in Items and Fabrication of Pre		
P-BG1384 Fabrication of Precast box girder, Including Cast-in Items and Prestressing -Span W3-W4(Soddi)	75	75 05-Sep-19	30-Aug-19	18-Nov-19	12-Nov-19	21	0% 0 -				- Tubileduoli of Fie	Fab	
P-BG1385 Fabrication of Precast box girder, Including Cast-in Items and Prestressing -Span W4-W5(South)	75	75 30-Sep-19	24-Sep-19	13-Dec-19	07-Dec-19	21	0% 0 -						
P-BG1390 Fabrication of Precast box girder, Including Cast-in Items and Prestressing -Span E6-E7(South)	75 167	75 25-Oct-19	19-Oct-19 16-Jul-19	07-Jan-20 21-Jan-20	01-Jan-20 29-Dec-19	21	0% 0 -						
prication of Precast Pier		167 08-Aug-19					-2.		:		Settin	g up precasting yard	
PF1220 Setting up precasting yard for precast pier (incl. 18 days TRA) PF1230 Fabrication of Precast pier (1st batch 4 nos) - E4, E5, E6, E7	87 99	87 08-Aug-19 99 15-Oct-19	16-Jul-19 22-Sep-19	02-Nov-19 21-Jan-20	10-Oct-19 29-Dec-19	1	0% struction -2: 0% 0 -2:				Scaling	g up precasung yare	
prication of Steel Arch Bridge and Side Spans	292	133 28-Mar-19 A	08-Apr-19	18-Dec-19	24-Jan-20	8	3						
abrication of Steel Arch Bridge	292	133 28-Mar-19 A	08-Apr-19	18-Dec-19	24-Jan-20	8	3						
P-PF1035 1st batch of shop drawing submission & approval (NCE 014)(EW014)	50	2 28-Mar-19 A	08-Apr-19	09-Aug-19	27-May-19	-90	96% struction -7-	1st batch	of shop drawing sub	mission & approval (NCE 014)(EW014)			
P-PF1040 Setting up steel work fabrication yard	60	60 20-Sep-19	20-Sep-19	18-Nov-19	18-Nov-19	-95	0% 0				:	Sett	
P-PF1045 Remaining shop drawing submission & approval (NCE 014) P-PF1047 Procurement and delivrey of welding materials	65 90	65 29-Jun-19 A 29 06-Jun-19 A	21-Nov-19 08-Jun-19	03-Dec-19 05-Sep-19	24-Jan-20 05-Sep-19	-95	0% struction 5:			Procurement and delivrey of welding materials			
P-PF1050 Procurement and delivery of steel material (incl. 35 days TRA)	125	61 19-Apr-19 A	12-Jun-19	09-Oct-19	14-Oct-19	-90	51.2% struction	-			 Procurement and delivery of ste 		
P-PF1055 1st batch of on site material sampling & testing	20	15 25-Jun-19 A	10-Oct-19	24-Oct-19	29-Oct-19	-90	25% 0				1st batch of		
P-PF1065 Welding Procedure trials P-PF1075 Pre-production Trials (e.g. Flame Cutting)	90	59 29-Jun-19 A 10 15-Oct-19	06-Aug-19 20-Oct-19	03-Nov-19 24-Oct-19	03-Nov-19 29-Oct-19	-95 -90	34.44% 0				Pre-product	ling Procedure trial	
P-PF1095 Material Pre-Treatment	50	50 30-Oct-19	30-Oct-19	18-Dec-19	18-Dec-19	-95	0%				:	(8	
on 2 of Works-All Works within Portion II,III,IV and VI	427	315 23-Nov-18 A	18-Apr-19	17-Jun-20	08-Aug-20	68	5.						
L Main Bridge and Marine Viaduct	427	315 23-Nov-18 A	18-Apr-19	17-Jun-20	08-Aug-20	68	5.						
ling Works	254	142 23-Nov-18 A	18-Apr-19	27-Dec-19	07-Feb-20	109	4:						
S2-PW1010 Procurement and delivery of steel casing (CE004)(CE005)(CE006)(CE008)(NCE 018 & 019)	75	1 23-Nov-18 A	18-Apr-19	08-Aug-19	01-Jul-19	31	98.67% struction -3	Procureme	ent and delivery of ste	el casing (CE004)(CE005)(CE006)(CE008)(NCE 018			
Piling Works for Pier W4	56	56 26-Jul-19 A	29-Nov-19	02-Oct-19	07-Feb-20	195	12	_		Piling Works	for Pier W4		
S2-PW50 Piling platform installation -W4 Pile W4-P1	4 7	0 26-Jul-19 A 7 29-Jul-19 A	29-Nov-19 04-Dec-19	29-Jul-19 A 15-Aug-19	03-Dec-19 14-Dec-19	21	100% 0 10		Pile W4-P1				
S2-PW: Drive Casing & Grab to excavate the soil (40.4m length) -W4-P1	3	0 29-Jul-19 A	04-Dec-19	29-Jul-19 A	06-Dec-19	21	100% 0 10						
S2-PW: Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air	r lifting - 4	4 08-Aug-19	07-Dec-19	12-Aug-19	11-Dec-19	17	0% 0 10						
S2-PW: Install steel cage and concreting -W4-P1 Pile W4 -P2	3	3 13-Aug-19 7 29-Jul-19 A	12-Dec-19 07-Dec-19	15-Aug-19	14-Dec-19	21	0% 0 10	-	Pile W4 -P2				
S2-PW: Drive Casing & Grab to excavate the soil (40.4m length) -W4-P2	3	7 29-Jul-19 A 0 29-Jul-19 A	07-Dec-19	20-Aug-19 29-Jul-19 A	19-Dec-19 10-Dec-19	20	100% 0 11:		1.10 TT-1.2				
S2-PW: Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air	r lifting - 4	4 13-Aug-19	12-Dec-19	16-Aug-19	16-Dec-19	17	0% 0 10						
S2-PW: Install steel cage and concreting -W4-P2 Pile W4 -P3	3	3 17-Aug-19	17-Dec-19	20-Aug-19	19-Dec-19	20	0% 0 10	-	Pile WA)			
S2-PW: Drive Casing & Grab to excavate the soil (40.4m length) -W4-P3	3	7 29-Jul-19 A 0 29-Jul-19 A	11-Dec-19 11-Dec-19	24-Aug-19 29-Jul-19 A	24-Dec-19 13-Dec-19	19	100% 0 11:	•	- 1 HC W-1-1	-			
S2-PW: Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air	r lifting - 4	4 17-Aug-19	17-Dec-19	21-Aug-19	20-Dec-19	17	0% 0 10						
S2-PW: Install steel cage and concreting -W4-P3	3	3 22-Aug-19	21-Dec-19	24-Aug-19	24-Dec-19	19	0% 0 10		D:1.	W/4_P/4			
Pile W4 -P4 S2-PW: Drive Casing & Grab to excavate the soil (40.4m length) -W4-P4	7	7 30-Jul-19 A 0 30-Jul-19 A	14-Dec-19 14-Dec-19	29-Aug-19 30-Jul-19 A	31-Dec-19 17-Dec-19	18	100% 0 11	i	* Pile	, 177-24			
S2-PW: Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air	r lifting - 4	4 22-Aug-19	21-Dec-19	26-Aug-19	27-Dec-19	17	0% 0 10						
S2-PW: Install steel cage and concreting -W4-P4	3	3 27-Aug-19	28-Dec-19	29-Aug-19	31-Dec-19	18	0% 0 10			T Dila WA DS			
Pile W4-P5 S2-PW: Drive Casing & Grab to excavate the soil (40.4m length) -W4-P5	8	7 30-Jul-19 A 0 30-Jul-19 A	18-Dec-19 18-Dec-19	03-Sep-19 30-Jul-19 A	06-Jan-20 20-Dec-19	17	100% 0 120			Pile W4 -P5			
S2-PW: Drive Casing & Grab to excavate the soil (40.4m length) - w4-P5 S2-PW: Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air	r lifting - 4	0 30-Jul-19 A 4 27-Aug-19	28-Dec-19	30-Jul-19 A 30-Aug-19	02-Jan-20	17	0% 0 12		_				
S2-PW: Install steel cage and concreting -W4-P5	3	3 31-Aug-19	03-Jan-20	03-Sep-19	06-Jan-20	17	0% 0 10		<u>=</u>	PI WAR			
Pile W4 -P6 S2 DW/ Lectell DCD and executed the male variety and are althoughtered to found in a level (Am analyst), ris No. 1, 8 air	1:0ino 1	4 04-Sep-19	10-Jan-20	07-Sep-19	14-Jan-20	17	0% 0 10			Pile W4 -P6			
S2-PW: Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air S2-PW: Install steel cage and concreting -W4-P6	1 mung - 1 3	1 04-Sep-19 3 05-Sep-19	10-Jan-20 11-Jan-20	04-Sep-19 07-Sep-19	10-Jan-20 14-Jan-20	17 17	0% 0 10 0% 0 10			_			
Testing	21	21 09-Sep-19	15-Jan-20	02-Oct-19	07-Feb-20	167	110			Testing			
S2-PW4 Sonic Test, interface core and full core for bored pile -W4	21	21 09-Sep-19	15-Jan-20	02-Oct-19	07-Feb-20	167	0% 0 110			:			
Piling Works for Pier E2	74	74 09-Sep-19	26-Aug-19	21-Nov-19	07-Nov-19	20	-1			Piling platform installation -E2 (CE006			
S2-PW85 Piling platform installation -E2 (CE006) Pile E2 -P1	10	4 09-Sep-19 10 13-Sep-19	26-Aug-19 30-Aug-19	12-Sep-19 25-Sep-19	29-Aug-19 10-Sep-19	17 21	0% 0 -1:		_	Piling platform installation -E2 (CE006) Pile E2 -P1	'		
S2-PW! Drive Casing & Grab to excavate the soil (40.4m length) -E2-P1	3	3 13-Sep-19	30-Aug-19	17-Sep-19	02-Sep-19	17	0% 0 -1		-	Drive Casing & Grab to excavat			
S2-PW! Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.2 & air	lifting - 4	4 18-Sep-19	03-Sep-19	21-Sep-19	06-Sep-19	17	0% 0 -1			Install RCD and excavate to	e rock under rockhead level to for	unding level (4m s	
Remaining Level of Effort Domaining Work	▲ Milostono				CDD C			Date		Revision	Checked	Approv	
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Primary Baseline Critical Remaining Work	Summary		т	hree Man	th Rolling	Progra	mme	00 / lug-10	I VIOLIUII U			+	
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Sept	08-Aug-19	Contract	No. NE/201	17/07 Cros	ss Bay Lin	k, Tseng K	wan O	- Main Brid	ige and A	ssociated Wo	rks		
Property													
	Actus/Name		ning Duration Start	Planned Start	Pinish	Planned Finish	Total Float	ctivity% Complete TRA	ariance - Finish Date	28 04 11	18 25 01 08 15 22 29 06	October 2019 13 20 27 03 concreting F2-P1	November 2019 10 17
Solid Color Colo		3						0% 0	-12		Pile E2 -P2	concreting -EZ-F1	
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March 10 10 10 10 10 10 10 1		air lifting - 4							-12 -12			scavate the rock under rockhead level age and concreting -E2-P2	ei to founding level
Company Comp		12						070	-12		▼ Pile E2		
Company Comp									-12			to excavate the soil (40.4m length) - O and excavate the rock under rockhe	
March Marc		air lifting - 4							-12 -12			steel cage and concreting -E2-P3	lead level to foundi
Section 1985		13					18	070	-12		· · · · · · · · · · · · · · · · · · ·	Pile E2 -P4	
Company									-12			Grab to excavate the soil (40.4m length	
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Remaining Lever of Entit. Remaining work Vinitesione CRRC			1 2T-00P-17	21-Aug-17	21-00P-17			070 0	-20	Data	<u> </u>	Checked	Approv
08-Aug-19 Monthly updated on 8 Aug 2019	emaining Level of Effort Remaining Work •	Milestone				CRBC						Oriented	- Appion
Primary Recolline Critical Permaining Work Summary	rimary Baseline Critical Remaining Work	Summary		nr.	has Mr.		Duage			00-Aug-19	Involutily updated 011 6 Aug 20 19		+
Actual Work Saseline Milestone Actual Work Saseline Milestone Three Month Rolling Programme	ctual Work A Raseline Milestone	-		1	nree Mon	ui Koiling	rrogral	шие					

Date : 08-Aug-19 4	Contract N	NO. NE/201	//U/ Cros	ss Bay Link	k, 1 seng K	rks					
The state of the s	1 0000	D-4-10-4	Starred State	15	N	- Taylora 1	A = 2 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	arlance - Finish Date August 2019	September 2019	0.11-200	Nonetor
ACMAY/RATE	Original Remaining Duration	2 20 C 10	Planted Start	02.0 + 10	PlamedFinsh	loarioa	ACMIN'S COMPREE IRA VA	28 04 11	18 25 01 08 15 22 29	06 13 20 27 03 all steel cage and concreting -W1+P3	3 10 17
S2-PW; Install steel cage and concreting -W1-P3 Pile W1 -P4	3 11	3 28-Sep-19 11 24-Sep-19	26-Aug-19 21-Aug-19	02-Oct-19 08-Oct-19	28-Aug-19 02-Sep-19	15 14	0% 0	-28 -28		Pile W1 -P4	
S2-PW: Drive Casing & Grab to excavate the soil (42.4m length) -W1-P4	4	4 24-Sep-19	21-Aug-19	27-Sep-19	24-Aug-19	2	0% 0	-28		ng & Grab to excavate the soil (42.4m len stall RCD and excavate the rock under roc	
S2-PW: Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting S2-PW: Install steel cage and concreting -W1-P4	ng - 4 3	4 28-Sep-19 3 04-Oct-19	26-Aug-19 30-Aug-19	03-Oct-19 08-Oct-19	29-Aug-19 02-Sep-19	2 14	0% 0 0% 0	-28 -28		Install steel cage and concreting -W1-	
Pile W1 -P5	11	11 28-Sep-19	26-Aug-19	12-Oct-19	06-Sep-19	13	20/	-28		Pile W1 -P5 ive Casing & Grab to excavate the soil (42)	2 Am Ionath WI I
S2-PW Drive Casing & Grab to excavate the soil (42.4m length) -W1-P5 S2-PW Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting		4 28-Sep-19 4 04-Oct-19	26-Aug-19 30-Aug-19	03-Oct-19 09-Oct-19	29-Aug-19 03-Sep-19	2 2	0% 0 0% 0	-28 -28		Install RCD and excavate the rock up	
S2-PW: Install steel cage and concreting -W1-P5 Pile W1 -P6	3	3 10-Oct-19	04-Sep-19	12-Oct-19	06-Sep-19	13	0% 0	-28 -28		Install steel cage and concreting Pile W1 -P6	-W1-P5
S2-PW Drive Casing & Grab to excavate the soil (42.4m length) -W1-P6	4	11 04-Oct-19 4 04-Oct-19	30-Aug-19 30-Aug-19	17-Oct-19 09-Oct-19	11-Sep-19 03-Sep-19	12	0% 0	-28 -28		Drive Casing & Grab to excavate the	ne soil (42.4m length
S2-PW: Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting	ng - 4	4 10-Oct-19	04-Sep-19	14-Oct-19	07-Sep-19	2	0% 0	-28	-	Install RCD and excavate the Install steel cage and conc	
S2-PW- Install steel cage and concreting -W1-P6 Pile W1 -P7	11	3 15-Oct-19 11 10-Oct-19	09-Sep-19 04-Sep-19	17-Oct-19 22-Oct-19	11-Sep-19 17-Sep-19	12 11	0% 0	-28 -28	_	Pile W1 -P7	cicuig - w 1-1 0
S2-PW Drive Casing & Grab to excavate the soil (42.4m length) -W1-P7	4	4 10-Oct-19	04-Sep-19	14-Oct-19 18-Oct-19	07-Sep-19	2	0% 0 0% 0	-28 -28	_	Drive Casing & Grab to excave Install RCD and excavate	
S2-PW- Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air liftin S2-PW- Install steel cage and concreting -W1-P7	ng - 4	4 15-Oct-19 3 19-Oct-19	09-Sep-19 13-Sep-19	22-Oct-19	12-Sep-19 17-Sep-19	11	0% 0	-28		Install steel cage an	
Pile W1 -P8	11	11 15-Oct-19	09-Sep-19	26-Oct-19	21-Sep-19	10	20/	-28		Pile W1 -P8 Drive Casing & Grab to	avanvata tha aail (/
S2-PW Drive Casing & Grab to excavate the soil (42.4m length) -W1-P8 S2-PW Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting	ng - 4	4 15-Oct-19 4 19-Oct-19	09-Sep-19 13-Sep-19	18-Oct-19 23-Oct-19	12-Sep-19 18-Sep-19	2 2	0% 0 0% 0	-28 -28		Install RCD and e	
S2-PW- Install steel cage and concreting -W1-P8 Pile W1 -P9	3	3 24-Oct-19	19-Sep-19	26-Oct-19	21-Sep-19	10	0% 0	-28	_	Install steel ca	age and concreting -
S2-PW Drive Casing & Grab to excavate the soil (42.4m length) -W1-P9	4	11 19-Oct-19 4 19-Oct-19	13-Sep-19 13-Sep-19	31-Oct-19 23-Oct-19	26-Sep-19 18-Sep-19	2	0% 0	-28 -28		Drive Casing & G	Grab to excavate the
S2-PW- Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting S2-PW- Install steel cage and concreting -W1-P9	ng - 4	4 24-Oct-19	19-Sep-19	28-Oct-19	23-Sep-19	2	0% 0	-28 28	-	Install RCE	D and excavate the a steel cage and conca
S2-PW4 Install steel cage and concreting -W1-P9 Piling Works for Pier W5	12	3 29-Oct-19 12 04-Dec-19	24-Sep-19 01-Nov-19	31-Oct-19 17-Dec-19	26-Sep-19 14-Nov-19	67	0% 0	-28 -28	_	- instan s	saca cage and conc
S2-PW53: Piling platform installation -W5	4	4 04-Dec-19	01-Nov-19	07-Dec-19	05-Nov-19	67	0% 0	-28			
Pile W5 -P1 S2-PW: Drive Casing & Grab to excavate the soil (40.4m length) -W5-P1	8 4	8 09-Dec-19 4 09-Dec-19	06-Nov-19 06-Nov-19	17-Dec-19 12-Dec-19	14-Nov-19 09-Nov-19	67 67	0% 0	-28 -28		_	_
S2-PW: Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.1 & air lifting		4 13-Dec-19	11-Nov-19	17-Dec-19	14-Nov-19	67	0% 0	-28			
Pile W5 -P2 S2-PW: Drive Casing & Grab to excavate the soil (40.4m length) -W5-P2	4	4 13-Dec-19 4 13-Dec-19	11-Nov-19 11-Nov-19	17-Dec-19 17-Dec-19	14-Nov-19 14-Nov-19	67 67	0% 0	-28 -28			_
Piling Works for Pier E7	29	24 06-Jun-19 A	08-Jul-19	31-Aug-19	05-Sep-19	20	070	5	Piling Works for Pier E7		
Pile E7 -P1	3	0 09-Jul-19 A	08-Jul-19	11-Jul-19 A	10-Jul-19		1000/	-1 -1 and concreting -E7-P1			
S2-PW Install steel cage and concreting -E7-P1 Pile E7 -P2	7	0 09-Jul-19 A 0 08-Jul-19 A	08-Jul-19 08-Jul-19	11-Jul-19 A 20-Jul-19 A	10-Jul-19 15-Jul-19		100% 0	-5 E7 -P2			
S2-PW Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.2 & air lifting	ng - 4	0 08-Jul-19 A	08-Jul-19	18-Jul-19 A	11-Jul-19		100% 0	_6 RCD and excavate the rock under _5 Ill steel cage and concreting -E7-P2	ockhead level to founding level (4m socket) - rig No.2 & air lif	ting -E7-P2	
S2-PW Install steel cage and concreting -E7-P2 Pile E7 -P4	8	0 19-Jul-19 A 0 06-Jun-19 A	12-Jul-19 17-Jul-19	20-Jul-19 A 16-Jul-19 A	15-Jul-19 15-Aug-19		100% 0	26'4			
S2-PW Drive Casing & Grab to excavate the soil (40.4m length) -E7-P4	4	0 06-Jun-19 A	12-Aug-19	07-Jun-19 A	15-Aug-19		100% 0		e Casing & Grab to excavate the soil (40.4m length) -E7-P4		
S2-PW. Install steel cage and concreting -E7-P4 Pile E7 -P5	3 8	0 15-Jul-19 A 0 06-Jun-19 A	17-Jul-19 17-Jul-19	16-Jul-19 A 24-Jul-19 A	19-Jul-19 20-Aug-19		100% 0	3 steel cage and concreting -E7-P4 Pile E7 -P5			
S2-PW Drive Casing & Grab to excavate the soil (40.4m length) -E7-P5	4	0 06-Jun-19 A	16-Aug-19	07-Jun-19 A	20-Aug-19		100% 0		Drive Casing & Grab to excavate the soil (40.4m length) -E7		
S2-PW Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.2 & air lifting S2-PW Install steel cage and concreting -E7-P5	ng 4	0 15-Jul-19 A 0 23-Jul-19 A	17-Jul-19 22-Jul-19	22-Jul-19 A 24-Jul-19 A	20-Jul-19 24-Jul-19		100% 0 100% 0	0 Install steel cage and concreting -1	nder rockhead level to founding level (4m socket) - rig No.2 & 27-P5	air illung -E/-ro	
Pile E7 -P6	10	0 06-Jun-19 A	25-Jul-19	13-Jul-19 A	05-Sep-19			46	Div Coin & Color	1 (40 4m 1m 4) E7 DC	
S2-PW Drive Casing & Grab to excavate the soil (40.4m length) -E7-P6 S2-PW Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.2 & air lifting	9 4 ng 4	0 06-Jun-19 A 0 05-Jul-19 A	02-Sep-19 25-Jul-19	07-Jun-19 A 11-Jul-19 A	05-Sep-19 29-Jul-19		100% 0 100% 0	15 Install RCD and excavate t	 Drive Casing & Grab to excavate the so ne rock under rockhead level to founding level (4m socket) - rig 		
S2-PW Install steel cage and concreting -E7-P6	3	0 12-Jul-19 A	30-Jul-19	13-Jul-19 A	01-Aug-19	17	100% 0	16 Install steel cage and co	ncreting -E7-P6 Testing		
S2-PW Sonic Test, interface core and full core for bored pile -E7	21	21 08-Aug-19 21 08-Aug-19	02-Aug-19 02-Aug-19	31-Aug-19 31-Aug-19	26-Aug-19 26-Aug-19	17	0% 0	-5	Sonic Test, interface core and full core for bore	d pile -E7	
Piling Works for Pier E1	124	51 08-May-19 A	30-May-19	27-Sep-19	30-Sep-19	19		3		ks for Pier E1	
S2-PW75 Piling platform installation -E1	5	1 17-May-19 A 0 18-Jul-19 A	30-May-19 11-Jul-19	08-Aug-19 10-Aug-19 A	03-Jun-19 18-Jul-19	2	75% 0	-55 Piling platfor	n installation -E1		
S2-PW Install RCD and excavate the rock under rockhead level to founding level (4m socket) & air lifting -E1-P1	(N(4	0 18-Jul-19 A	11-Jul-19	08-Aug-19 A	15-Jul-19		100% 0		nd excavate the rock under rockhead level to founding level (4r	n socket) & air lifting -E1-P1 (NCE 006)	
S2-PW' Install steel cage and concreting -E1-P1 Pile E1 -P10	3 19	0 09-Aug-19 A 0 07-Jun-19 A	16-Jul-19 20-Aug-19	10-Aug-19 A 21-Jun-19 A	18-Jul-19 10-Sep-19		100% 0	-20 Install steel	cage and concreting -E1-P1		
S2-PWt Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.2 & air lifting	ng - 3	0 07-Jun-19 A	20-Aug-19	13-Jun-19 A	22-Aug-19		100% 0	59	 Install RCD and excavate the rock under rockhead level to 		air lifting -E1-P10
S2-PW\ Install steel cage and concreting -E1-P10 Pile E1 -P11	7	0 14-Jun-19 A 0 09-Jul-19 A	03-Sep-19 30-Jul-19	21-Jun-19 A 25-Jul-19 A	10-Sep-19 06-Aug-19		100% 0	68 10 Pile El -P11	Install steel cage and concreting -	E1-P10	
S2-PWt Install RCD and excavate the rock under rockhead level to founding level (4m socket) air lifting -E1-P11 (1	NCI 4	0 09-Jul-19 A	30-Jul-19	23-Jul-19 A	02-Aug-19		100% 0	9 — Install RCD and exca	rate the rock under rockhead level to founding level (4m socket	t) air lifting -E1-P11 (NCE 011)	
S2-PW\ Install steel cage and concreting -E1-P11 Pile E1 -P12	3 31	0 24-Jul-19 A 0 09-Jul-19 A	03-Aug-19 22-Jul-19	25-Jul-19 A 06-Aug-19 A	06-Aug-19 10-Aug-19		100% 0	10 Install steel cage Pile E1 -P12	and concreting: -E1-P11		
S2-PWt Drive Casing & Grab to excavate the soil (42.4m length) -E1-P12	3	0 09-Jul-19 A	22-Jul-19	10-Jul-19 A	24-Jul-19		100% 0	12 Drive Casing & Grab to excavate	the soil (42.4m length) -E1-P12		
S2-PWi Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.2 & air lifting S2-PWi Install steel cage and concreting -E1-P12	ng - 4	0 18-Jul-19 A 0 03-Aug-19 A	03-Aug-19 08-Aug-19	02-Aug-19 A 06-Aug-19 A	07-Aug-19 10-Aug-19		100% 0 100% 0		I excavate the rock under rockhead level to founding level (4m cage and concreting -E1-P12	socket) - rig No.2 & air lifting -E1-P12	
Pile E1 -P13 (Dia. 1000mm)	10	10 09-Aug-19	25-Jul-19	20-Aug-19	15-Aug-19	5		-4	Pile E1 -P13 (Dia. 1000mm)		
S2-PWl Drive Casing & Grab to excavate the soil (43.4m length) -E1-P13 S2-PWl Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.2 & air lifting	3 no - 4	3 09-Aug-19 4 13-Aug-19	25-Jul-19 08-Aug-19	12-Aug-19 16-Aug-19	27-Jul-19 12-Aug-19	2 2	0% 0 0% 0		sing & Grab to excavate the soil (43.4m length) -E1-P13 all RCD and excavate the rock under rockhead level to founding	ng level (4m socket) - rig No.2 & air lifting	ng -E1-P13
S2-PW\ Install steel cage and concreting -E1-P13	3	3 17-Aug-19	13-Aug-19	20-Aug-19	15-Aug-19	5	0% 0		Install steel cage and concreting -E1-P13	,	:
Pile E1 -P14 (Dia. 1000mm) S2-PWi Drive Casing & Grab to excavate the soil (43.4m length) -E1-P14	11	11 13-Aug-19 3 13-Aug-19	29-Jul-19 29-Jul-19	24-Aug-19 15-Aug-19	20-Aug-19 31-Jul-19	3	0% 0	-13 — Driv	Pile E1 -P14 (Dia. 1000mm) e Casing & Grab to excavate the soil (43.4m length) -E1-P14		
S2-PWi Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.2 & air lifting		4 17-Aug-19	13-Aug-19	21-Aug-19	16-Aug-19	2	0% 0	-4	Install RCD and excavate the rock under rockhead level to f	founding level (4m socket) - rig No.2 & ai	ir lifting -E1-P14
S2-PWt Install steel cage and concreting -E1-P14 Pile E1 -P15 (Dia. 1000mm)	3 12	3 22-Aug-19 12 16-Aug-19	17-Aug-19 01-Aug-19	24-Aug-19 29-Aug-19	20-Aug-19 24-Aug-19	4	0% 0		Install steel cage and concreting -E1-P14 Pile E1 -P15 (Dia. 1000mm)		
S2-PWt Drive Casing & Grab to excavate the soil (43.4m length) -E1-P15	3	3 16-Aug-19	01-Aug-19	19-Aug-19	03-Aug-19	4	0% 0	-13 —	Drive Casing & Grab to excavate the soil (43.4m length) -E1-I		
S2-PWl Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.2 & air lifting S2-PWl Install steel cage and concreting -E1-P15	ng - 4	4 22-Aug-19 3 27-Aug-19	17-Aug-19 22-Aug-19	26-Aug-19 29-Aug-19	21-Aug-19 24-Aug-19	3	0% 0 0% 0	4 4	 Install RCD and excavate the rock under rockhead le Install steel cage and concreting -E1-P15 	vel to founding level (4m socket) - rig No	o.2 & air lifting -E1-
Pile E1 -P16 (Dia. 1000mm)	13	13 20-Aug-19	05-Aug-19	03-Sep-19	29-Aug-19	2		4	Pile E1 -P16 (Dia. 1000mm)		
S2-PWl Drive Casing & Grab to excavate the soil (43.4m length) -E1-P16 S2-PWl Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.2 & air lifting	3 no - 4	3 20-Aug-19 4 27-Aug-19	05-Aug-19 22-Aug-19	22-Aug-19 30-Aug-19	07-Aug-19 26-Aug-19	5 2	0% 0 0% 0	-13 -4	 Drive Casing & Grab to excavate the soil (43.4m length) -l Install RCD and excavate the rock under rockhe 		rig No.2 & air lifting
S2-PWt Install steel cage and concreting E1-P16	3	3 31-Aug-19	27-Aug-19	03-Sep-19	29-Aug-19	2	0% 0	4	Install steel cage and concreting E1-P16	(IIII socket) - II	co can midlig
Testing S2 PW' Sonia Test interface core and full core for board pile E1	21	21 04-Sep-19	30-Aug-19	27-Sep-19	23-Sep-19	16		4	Testing Sonic Test	interface core and full core for bored pile	e -E1
S2-PW Sonic Test, interface core and full core for bored pile -E1 Pile E1 -P2	21 14	21 04-Sep-19 0 08-May-19 A	30-Aug-19 11-Jul-19	27-Sep-19 02-Aug-19 A	23-Sep-19 23-Jul-19	16	0% 0	-9 Pile E1 -P2		mentace core and run core for bored pile	v 1.1
S2-PW. Drive Casing & Grab to excavate the soil (42.4m length) -E1-P2	3	0 08-May-19 A	11-Jul-19	10-Jun-19 A	13-Jul-19		100% 0	28 & Grab to excavate the soil (42.4n	length)-E1-P2		
■ Remaining Level of Effort Remaining Work ◆ ◆	Milestone				CDDC			Date	Revision	Checked	Appro
					CRBC			08-Aug-19	Monthly updated on 8 Aug 2019		<u> </u>
,	Summary		T	hree Mont	h Rolling	Progra	mme	<u> </u>	<u> </u>		
Actual Work 💠 💠 Baseline Milestone	1		_			9- 3			1		

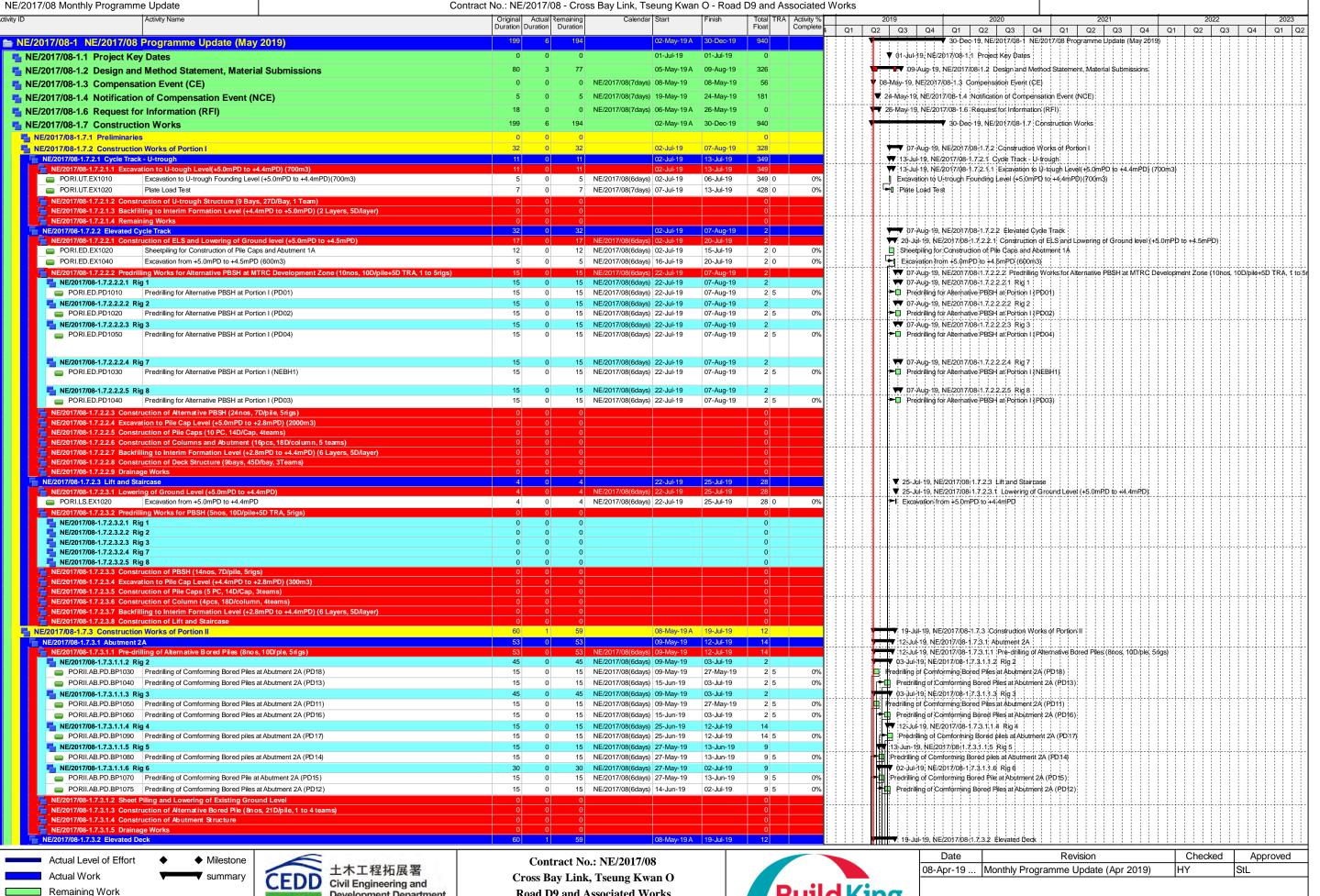
Data Date: 08-Aug-19 Page: 5	Contract	No. NE/2017	7/07 Cros	s Bay Link	k, Tseng K	wan O -	Main Bridge	e and Associated Works
fivityID ActivityName	Original Remaini Duration	g Duration Start	Planned Start	Finish	Planned Finish	Total Float Ad	ctivity%Complete TRA Variano	ze-Finish Date August 2019 September 2019 October 2019 November 2019
S2-PW Install steel cage and concreting -E1-P2	3	0 31-Jul-19 A	20-Jul-19	02-Aug-19 A	23-Jul-19		100% 0	28 04 11 18 25 01 08 15 22 29 06 13 20 27 03 10 17 24 9 Instal steel cage and concreting -E1-P2
Pile E1 -P4 S2-PW Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.	.2 & air lifting - 5	0 07-Jun-19 A 0 07-Jun-19 A	01-Aug-19 01-Aug-19	13-Jun-19 A 13-Jun-19 A	06-Aug-19 06-Aug-19		100% 0	45 45 Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.2 & air lifting -E1-P4
Pile E1 -P5	12	0 05-Jul-19 A	15-Jul-19	22-Jul-19 A	27-Jul-19			5 le E1 -P\$
S2-PW Drive Casing & Grab to excavate the soil (42.4m length) -E1-P5 S2-PW Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.	.2 & air lifting - 4	0 05-Jul-19 A 0 09-Jul-19 A	15-Jul-19 20-Jul-19	08-Jul-19 A 19-Jul-19 A	17-Jul-19 24-Jul-19		100% 0 100% 0	8 sing & Grab to excavate the soil (42.4m length) -E1-P5 4 Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.2 & air lifting -E1-P5
S2-PW Install steel cage and concreting -E1-P5 Pile E1-P6	3	0 20-Jul-19 A 0 16-Jul-19 A	25-Jul-19 18-Jul-19	22-Jul-19 A	27-Jul-19 01-Aug-19		100% 0	5 Install steel cage and concreting -E1-P5 5 7 Pile E1-P6
S2-PW. Drive Casing & Grab to excavate the soil (42.4m length) -E1-P6	3	0 16-Jul-19 A	18-Jul-19	27-Jul-19 A 18-Jul-19 A	20-Jul-19		100% 0	2 e Casing & Grab to excavate the soil (42.4m length) -E1-P6
S2-PW Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No. S2-PW Install steel cage and concreting -E1-P6	.2 & air lifting - 4	0 19-Jul-19 A 0 26-Jul-19 A	25-Jul-19 30-Jul-19	25-Jul-19 A 27-Jul-19 A	29-Jul-19 01-Aug-19		100% 0 100% 0	Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.2 & air lifting -E1-P6 Install steel cage and concreting -E1-P6
Pile E1 -P7	30	0 16-Jun-19 A	21-Aug-19	05-Jul-19 A	25-Sep-19			69
S2-PW Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No. S2-PW Install steel cage and concreting -E1-P7	2.2 & air lifting 30 3	0 16-Jun-19 A 0 03-Jul-19 A	21-Aug-19 31-Aug-19	02-Jul-19 A 05-Jul-19 A	25-Sep-19 03-Sep-19		100% 0 100% 0	72 Install RCD and excavate the rock under rockhead level to founding level (4m socket 51 Install steel cage and concreting -E1-P7
Pile E1 -P8	2.8 - 2.1.0	0 11-Jun-19 A	04-Sep-19	19-Jun-19 A	30-Sep-19		1000/	86 89 Install RCD and excavate the rock under rockhead level to founding level (4m
S2-PW Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No. S2-PW Install steel cage and concreting -E1-P8	2.2 & air lifting - 16 3	0 11-Jun-19 A 0 17-Jun-19 A	11-Sep-19 04-Sep-19	15-Jun-19 A 19-Jun-19 A	30-Sep-19 06-Sep-19		100% 0 100% 0	67 — Install steel cage and concreting -E1-P8
Pile E1 -P9 S2-PW{ Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.	2 & air lifting 2	0 14-Jun-19 A 0 14-Jun-19 A	09-Aug-19 10-Aug-19	26-Jun-19 A 24-Jun-19 A	15-Aug-19 13-Aug-19		100% 0	42 42 Install RCD and excavate the rock under rockhead level to founding level (4m socket) - rig No.2 & air lifting -E1-P9
S2-PWt Install steel cage and concreting -E1-P9	6	0 25-Jun-19 A	09-Aug-19	26-Jun-19 A	15-Aug-19		100% 0	42 Install steel cage and concreting -E1-P9
Pile Cap Pile Cap for Pier E5	142 44	136 25-May-19 A 44 08-Aug-19	08-Jul-19 19-Jul-19	20-Jan-20 28-Sep-19	09-Jan-20 07-Sep-19	175		-9 Pile Cap for Pier E5
S2-PC25t Pilehead treatment -E5	14	14 08-Aug-19	19-Jul-19	23-Aug-19	03-Aug-19	187	0% 0	-17 Pilehead treatment -E5
S2-PC258 Rebar fixing and 1st stage Concreting -E5 S2-PC282 Preparation works for pier installation -E5	10 10	10 24-Aug-19	05-Aug-19 28-Aug-19	04-Sep-19	15-Aug-19	187 187	0% 0 0% 0	-17 Rebar fixing and 1st stage Concreting -E5 -17 Preparation works for pier installation -E5
Pile Cap for Pier E6	95	10 18-Sep-19 89 18-Jun-19 A	01-Aug-19	28-Sep-19 22-Nov-19	07-Sep-19 16-Nov-19	175		-5 ₹
S2-PC255 S2-PC266 Welding of Steel Bracket -E6 (6nos.) Installation of precast shell -E6	14 10	7 18-Jun-19 A 10 19-Sep-19	01-Aug-19 12-Sep-19	15-Aug-19 30-Sep-19	16-Aug-19 24-Sep-19	30 175	50% 0% 0	1 Welding of Steel Bracket -E6 (6nos.) -5 Installation of precast shell -E6
S2-PC262 Pilehead treatment -E6	14	14 02-Oct-19	25-Sep-19	18-Oct-19	12-Oct-19	175	0% 0	-5 Pilehead treatment -E6
S2-PC264 Rebar fixing and 1st stage Concreting -E6 S2-PC284 Preparation works for pier installation -E6	10 10	10 19-Oct-19 10 12-Nov-19	14-Oct-19 06-Nov-19	30-Oct-19 22-Nov-19	24-Oct-19 16-Nov-19	175 175	0% 0 0% 0	-5 Rebar fixing and 1st stage Concreting
Pile Cap for Pier E7	68	68 02-Sep-19	27-Aug-19	22-Nov-19	16-Nov-19	210		Pile Cap
S2-PC265 Welding of Steel Bracket -E7 (6nos.) S2-PC266 Installation of precast shell -E7	14	14 02-Sep-19 10 19-Sep-19	27-Aug-19 12-Sep-19	18-Sep-19 30-Sep-19	11-Sep-19 24-Sep-19	16 32	0% 0% 0	-5 Welding of Steel Bracket -E7 (6nos.) -5 Installation of precast shell -E7
S2-PC268 Pilehead treatment -E7	14	14 02-Oct-19	25-Sep-19	18-Oct-19	12-Oct-19	210	0% 0	Pilehead treatment -E7
S2-PC27(Rebar fixing and 1st stage Concreting -E7 S2-PC286 Preparation works for pier installation -E7	10	10 19-Oct-19 10 12-Nov-19	14-Oct-19 06-Nov-19	30-Oct-19 22-Nov-19	24-Oct-19 16-Nov-19	210 210	0% 0 0% 0	Rebar fixing and 1st stage Concreting Preparat
Pile Cap for Pier W2	54	54 25-May-19 A	12-Sep-19	22-Nov-19	18-Nov-19	180	1000/	4
S2-PC198 Welding of Steel Bracket -W2 (6nos.) S2-PC200 Installation of precast shell -W2	14 10	0 25-May-19 A 10 19-Sep-19	02-Nov-19 12-Sep-19	07-Aug-19 A 30-Sep-19	18-Nov-19 24-Sep-19	180	100% 0% 0	-5 Installation of precast shell -W2
S2-PC202 Pilehead treatment -W2 S2-PC204 Rebar fixing and 1st stage Concreting -W2	14 10	14 02-Oct-19 10 19-Oct-19	25-Sep-19 14-Oct-19	18-Oct-19 30-Oct-19	12-Oct-19 24-Oct-19	180 180	0% 0 0% 0	Pilehead treatment -W2
S2-PC205 Preparation works for pier installation -W2	10	10 12-Nov-19	06-Nov-19	22-Nov-19	16-Nov-19	180	0% 0 0% 0	-5 Preparat
Pile Cap for Pier E1 S2-PC241 Welding of Steel Bracket -E1 (16nos.)	99	99 21-Sep-19 28 21-Sep-19	17-Sep-19 17-Sep-19	20-Jan-20 25-Oct-19	09-Jan-20 21-Oct-19	49 14	0%	-9
S2-PC242 Installation of precast shell -E1	18	18 01-Nov-19	22-Oct-19	21-Nov-19	11-Nov-19	9	0% 0	Installatio
S2-PC243 Installation of pre-cast side shell (small) and construction of strucutre gap x2 sides -E1 S2-PC244 Pilehead treatment -E1	40	40 26-Nov-19 48 22-Nov-19	12-Nov-19 12-Nov-19	14-Jan-20 20-Jan-20	30-Dec-19 09-Jan-20	54 9	0% 0% 0	12 _g
Pile Cap for Pier E2	14	14 22-Nov-19	08-Nov-19	07-Dec-19	23-Nov-19	17		-12
S2-PC225 Welding of Steel Bracket -E2 (6nos.) Pile Cap for Pier E3	14 84	14 22-Nov-19 51 24-Jun-19 A	08-Nov-19 10-Aug-19	07-Dec-19 19-Nov-19	23-Nov-19 13-Nov-19	17 225	0%	-12
S2-PC235 Welding of Steel Bracket -E3 (6nos.)	14	0 24-Jun-19 A	10-Aug-19	09-Jul-19 A	26-Aug-19		100%	41 Welding of Steel Bracket -E3 (6nos.)
S2-PC23t Installation of precast shell -E3 S2-PC23t Pilehead treatment -E3	10	10 19-Sep-19 14 02-Oct-19	12-Sep-19 25-Sep-19	30-Sep-19 18-Oct-19	24-Sep-19 12-Oct-19	201 225	0% 0 0% 0	-5 Installation of precast shell -E3 -5 Pilehead treatment -E3
S2-PC24(Rebar fixing and 1st stage Concreting -E3	10 10	10 19-Oct-19 10 08-Nov-19	14-Oct-19	30-Oct-19	24-Oct-19	225	0% 0	-5 Rebar fixing and 1st stage Concreting
S2-PC292 Preparation works for pier installation -E3 Pile Cap for Pier E4	44	44 23-Jul-19 A	02-Nov-19 08-Jul-19	19-Nov-19 28-Sep-19	13-Nov-19 07-Sep-19	225 181	0% 0	-5] Pile Cap for Pier E4
S2-PC248 Installation of precast shell -E4 S2-PC250 Pilehead treatment -E4	10 14	0 23-Jul-19 A 14 08-Aug-19	08-Jul-19 19-Jul-19	23-Jul-19 A 23-Aug-19	18-Jul-19 03-Aug-19	181	100% 0 0% 0	4 Installation of precast shell -E4
S2-PC252 Rebar fixing and 1st stage Concreting -E4	10	10 24-Aug-19	05-Aug-19	04-Sep-19	15-Aug-19	181	0% 0	-17 Rebar fixing and 1st stage Concreting -E4
S2-PC28C Preparation works for pier installation -E4 Assocaited, E&M Works for CBL Main Bridge and Marine Viaduct	10 214	10 18-Sep-19 214 26-Sep-19	28-Aug-19 30-Sep-19	28-Sep-19 17-Jun-20	07-Sep-19 08-Aug-20	181 -33	0% 0	-17 Preparation works for pier installation -E4
Procurement and Delivery of Assocaited, E&M Works	214	214 26-Sep-19	30-Sep-19	17-Jun-20	08-Aug-20	-33		43
S2-AW20 Procurement and delivery of under bridge mobile gantry S2-AW20 Procurement and delivery of arch inspection cradle	180 210	180 26-Sep-19 210 02-Oct-19	30-Sep-19 22-Nov-19	08-May-20 17-Jun-20	12-May-20 08-Aug-20	-34	0% 0 0% 0	3 12
Section 5 of the Works-All Works within Portion V (CBL E&M Plantroom)	174	123 08-May-19 A	08-Jun-19	04-Jan-20	16-Dec-19	24	0% 0	+) - 4
Structure Works	129	78 08-May-19 A	08-Jun-19	09-Nov-19	24-Oct-19	24		-14 Structure Works
S5-PR2045 Construction of On-grade Slab	28	15 08-May-19 A	08-Jun-19	24-Aug-19	11-Jul-19	24	46.43% 0	-38 Construction of On-grade Slab
S5-PR2046 Construction of Wall S5-PR2047 Construction of Roof	28 56	7 27-May-19 A 56 03-Sep-19	12-Jul-19 17-Aug-19	02-Sep-19 09-Nov-19	13-Aug-19 24-Oct-19	24 24	75% 0 0% 0	-1/ -14 Construction of Wall Construction of Roof
Finish Works	45	45 11-Nov-19	25-Oct-19	04-Jan-20	16-Dec-19	24		<u>-14</u>
	45 30							-14 -14
5.7-1 K2070 Cradding WORS	30	30 11-1101-17	25-00-19	14-Dec-19	20-1101-19	24	070 0	-17 :
	45						0% 0	-14 -14 -14
Remaining Level of Effort Remaining Work	◆ Milestone				CRBC			Date Revision Checked Approved 08-Aug-19 Monthly updated on 8 Aug 2019
Primary Baseline Critical Remaining Work	Summary		T	hree Mont	h Ralling	Progran	nme	or ray to product off or ray 2010
Actual Work ♦ Baseline Milestone			1.	111 CC 171UIII	n Koning	ı i uğı alı	шис	

Data Date : 08-Aug-19

CEDD Contract Agreement No. EDO/04/2018 -Environmental Team for Cross Bay Link, Tseung Kwan O Quarterly EM&A Summary Report (June to August 2019)



Contract 2

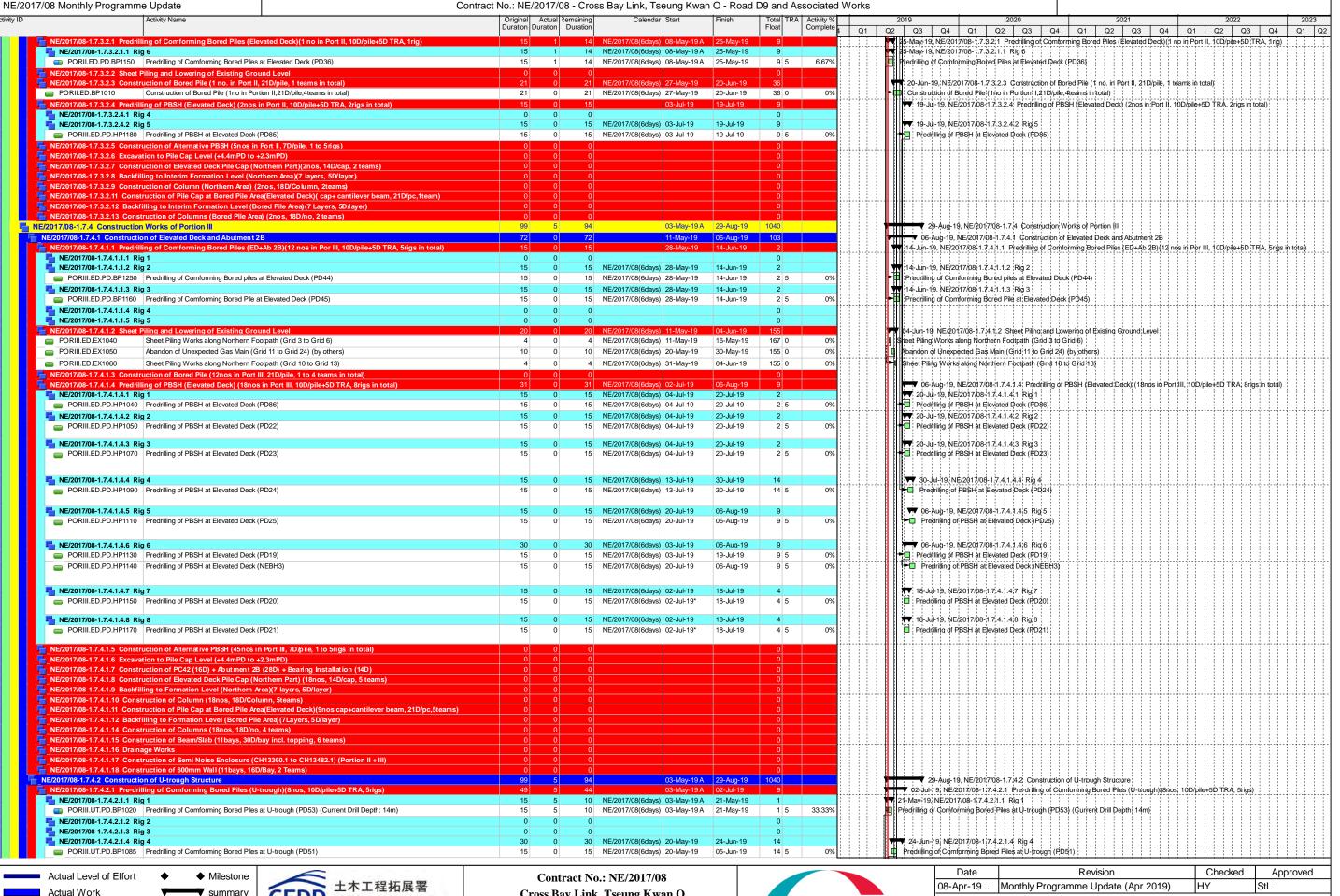


Page 1 of 4

Development Department

Critical Remaining Work

Build King Road D9 and Associated Works





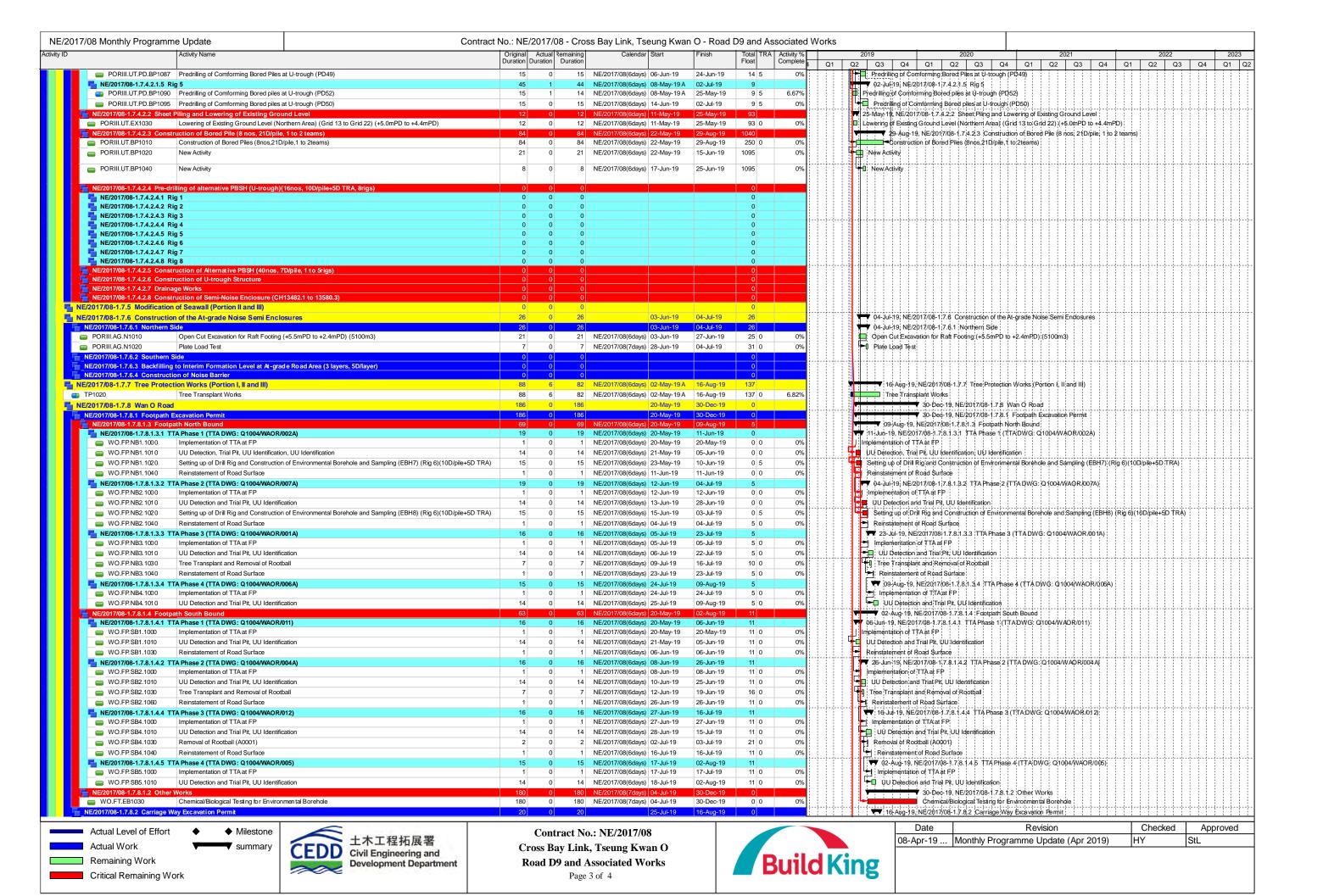


Contract No.: NE/2017/08
Cross Bay Link, Tseung Kwan O
Road D9 and Associated Works

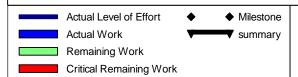
Page 2 of 4



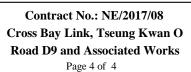
Date	Revision	Checked	Approved
08-Apr-19	Monthly Programme Update (Apr 2019)	HY	StL













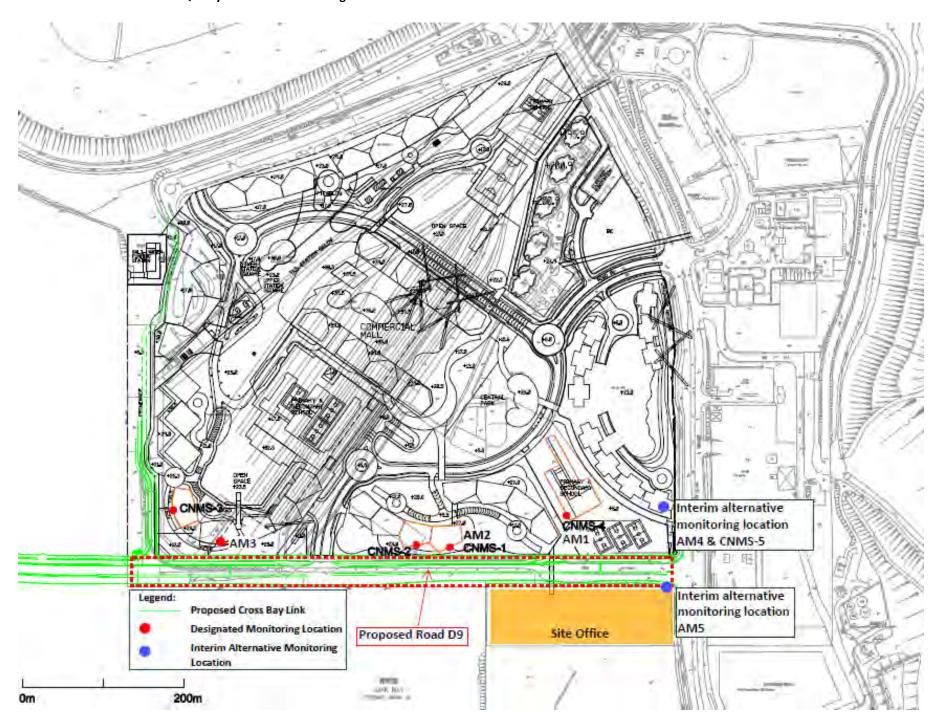
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08-Apr-19	Monthly Programme Update (Apr 2019)	HY	StL

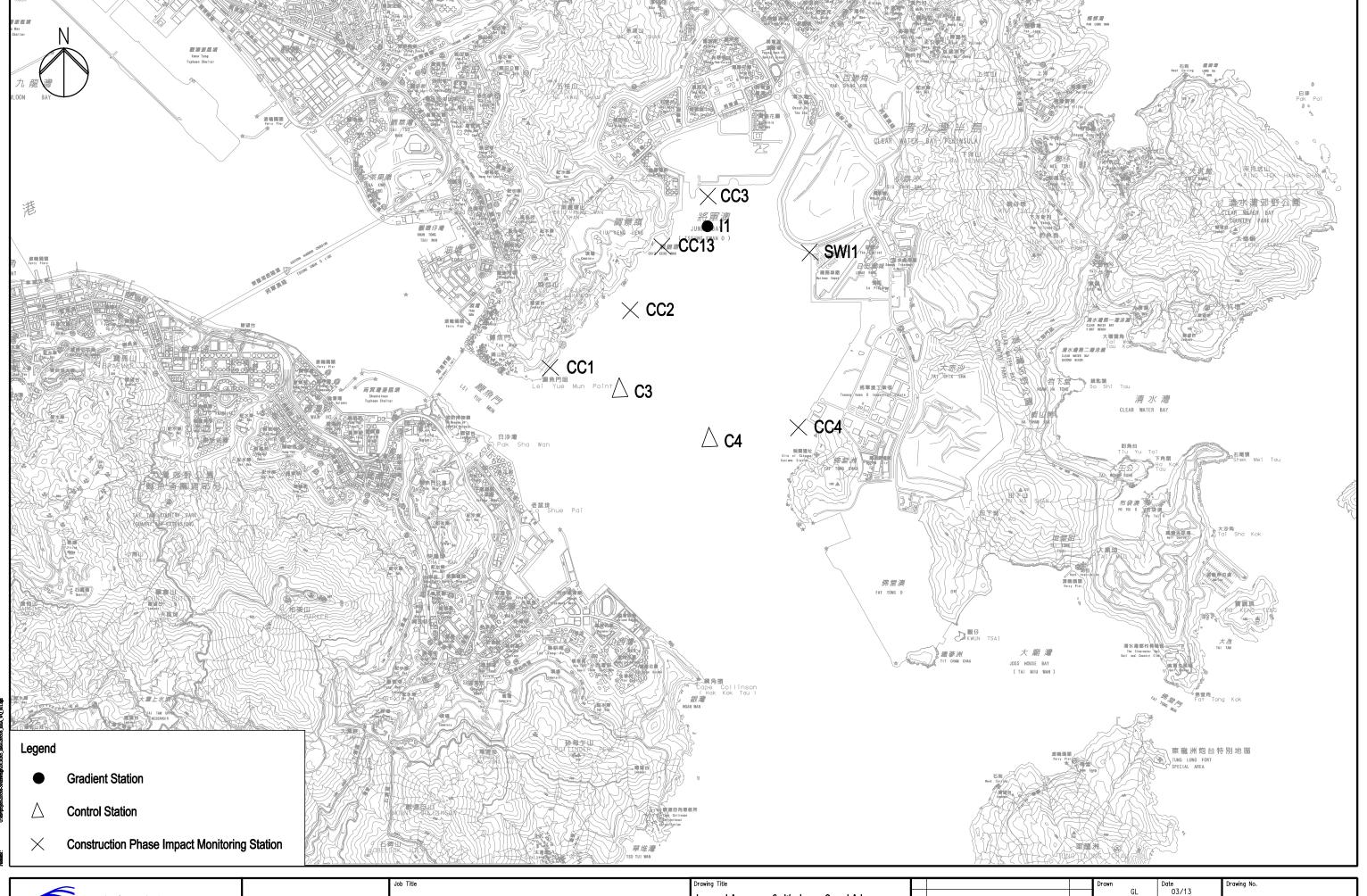


Appendix D

Monitoring Location (Air Quality, Noise and Water Quality)







CEDD

土木工程拓展署
Civil Engineering and
Development Department

 $ARUP \hbox{\tiny Ove Arup \& Partners} \\ \hbox{\tiny Hong Kong Limited}$

Agreement No. CE 43/2008(HY) Cross Bay Link, Tseung Kwan O - Investigation Locations of Water Quality Monitoring Stations

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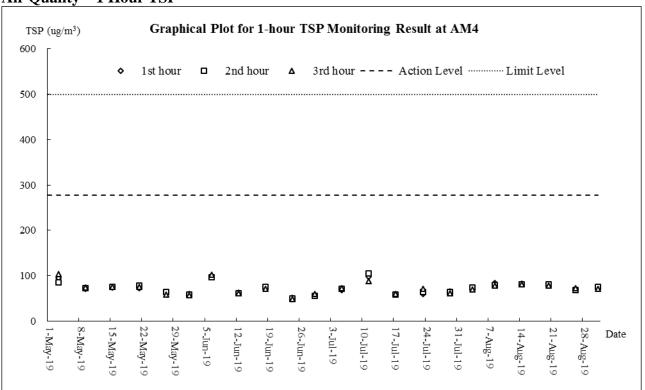


Appendix E

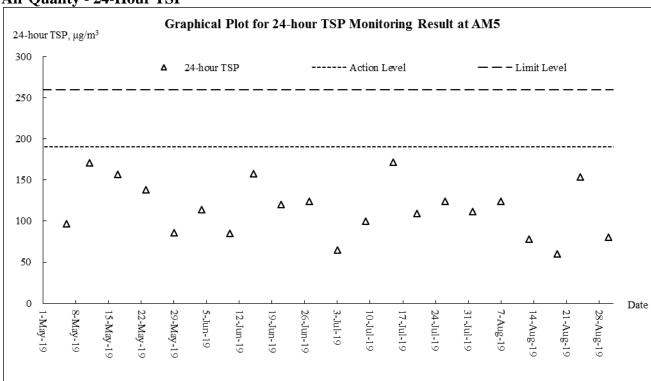
Graphical Plots of Monitoring Results



Air Quality - 1 Hour TSP

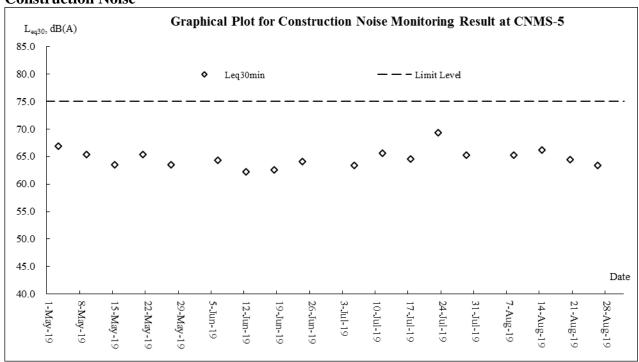


Air Quality - 24-Hour TSP



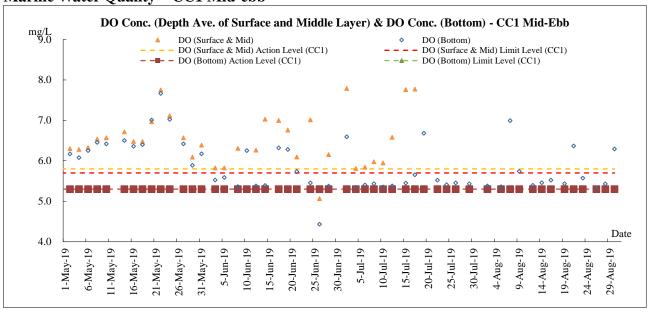


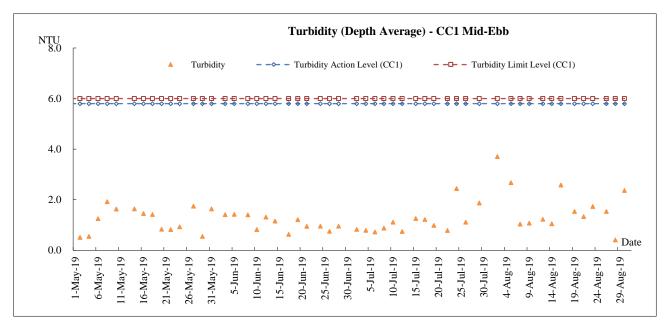
Construction Noise

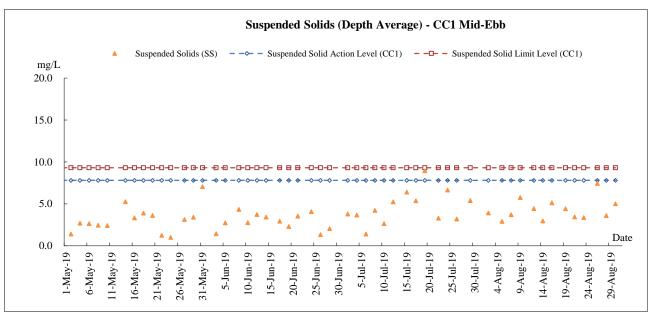




Marine Water Quality - CC1 Mid-ebb

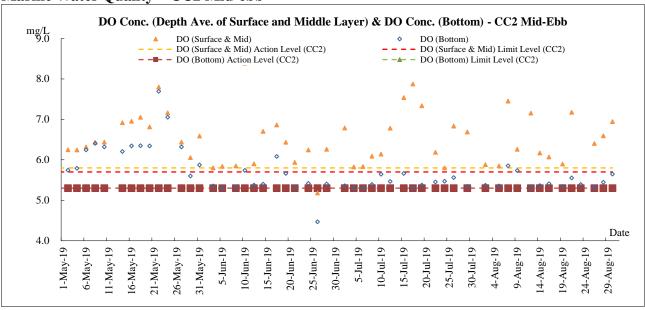


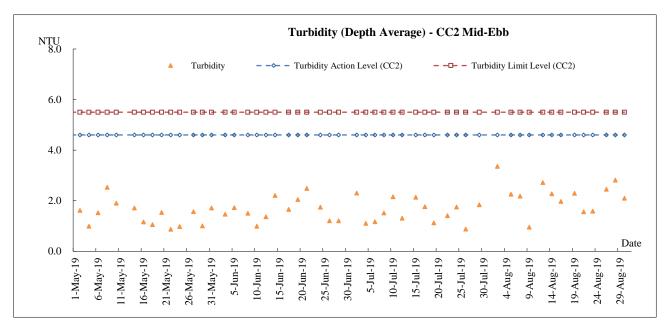


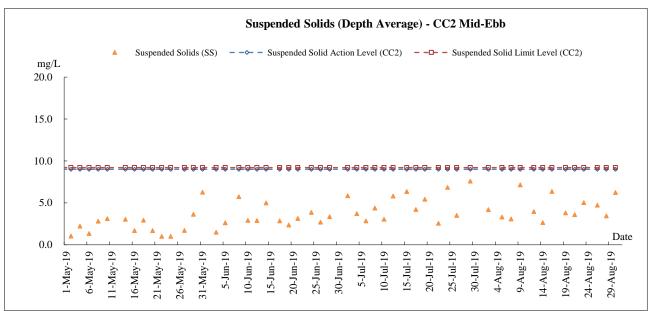




Marine Water Quality - CC2 Mid-ebb

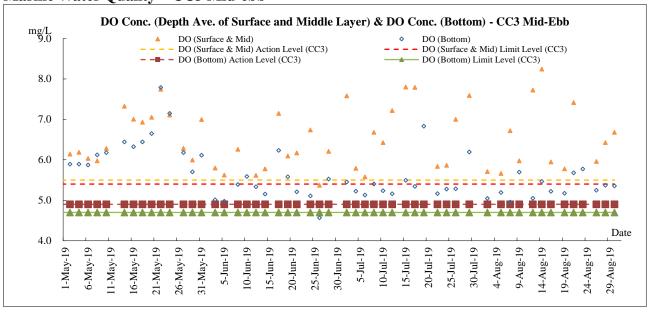


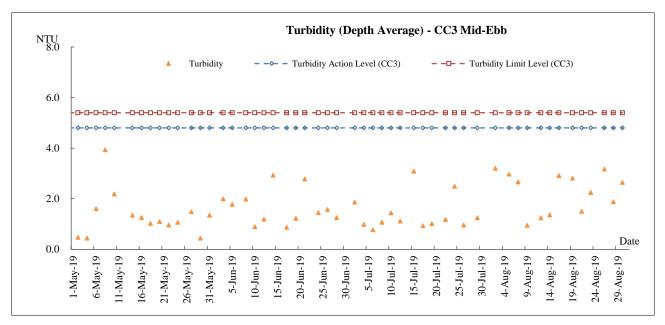


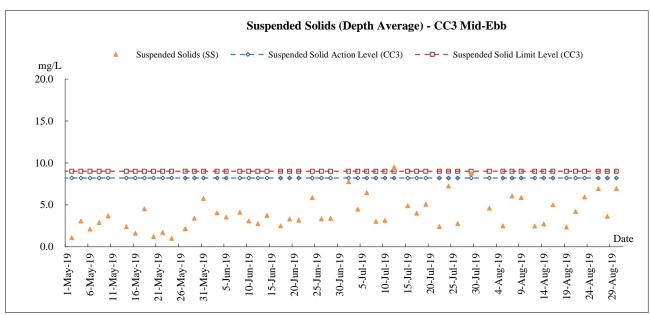




Marine Water Quality - CC3 Mid-ebb

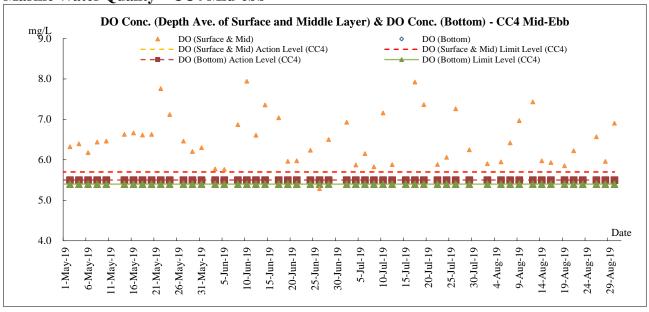


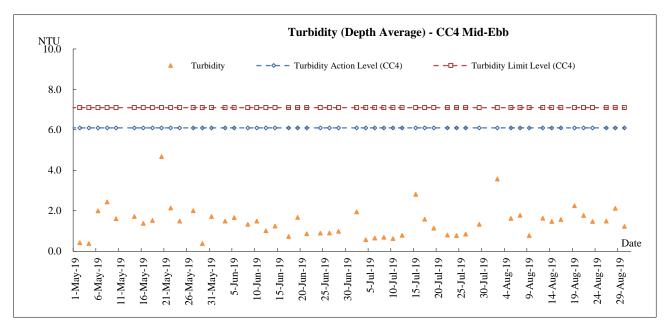


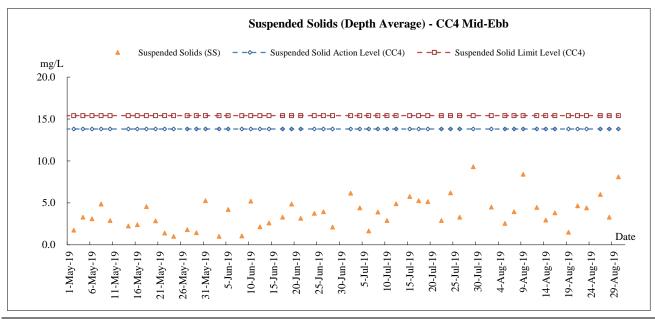




Marine Water Quality - CC4 Mid-ebb

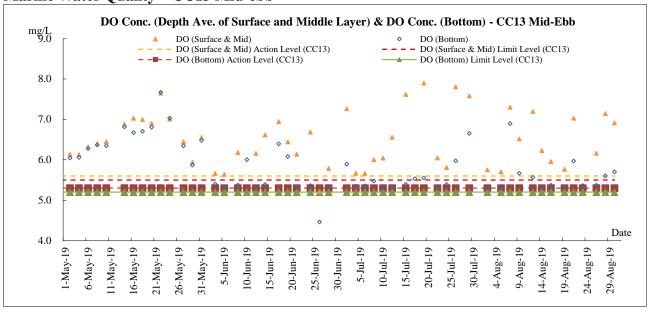


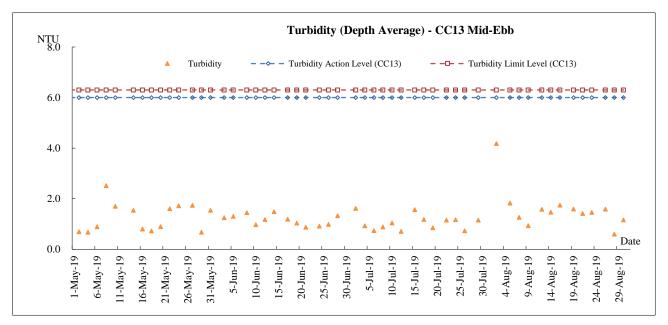


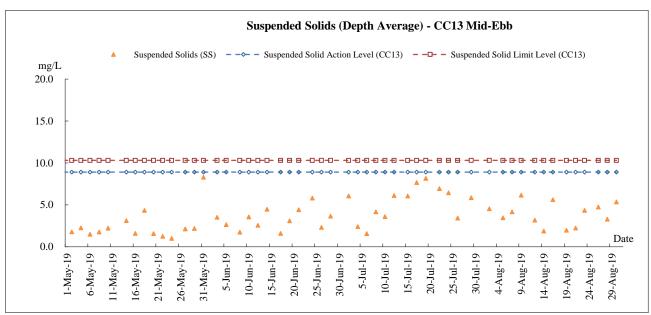




Marine Water Quality - CC13 Mid-ebb

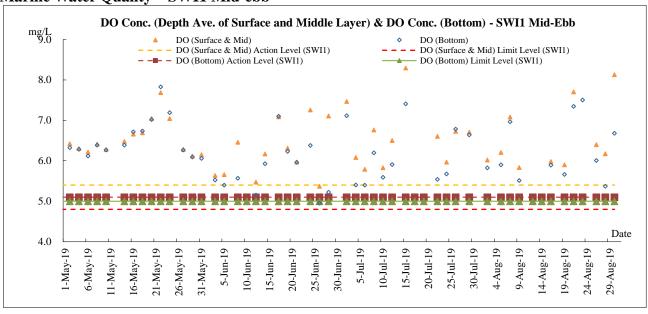


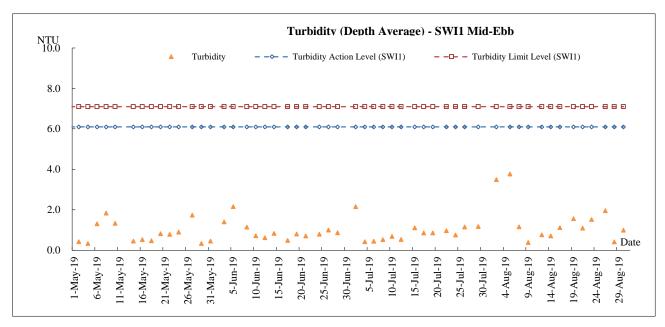


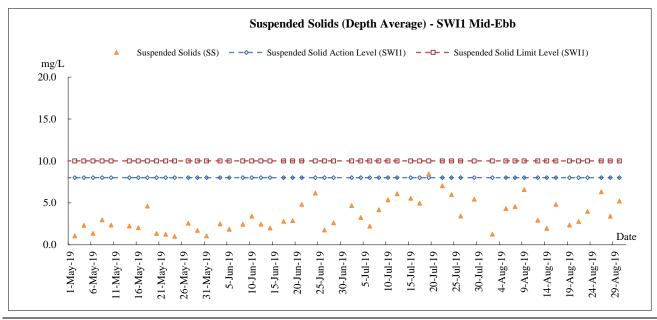




Marine Water Quality - SWI1 Mid-ebb

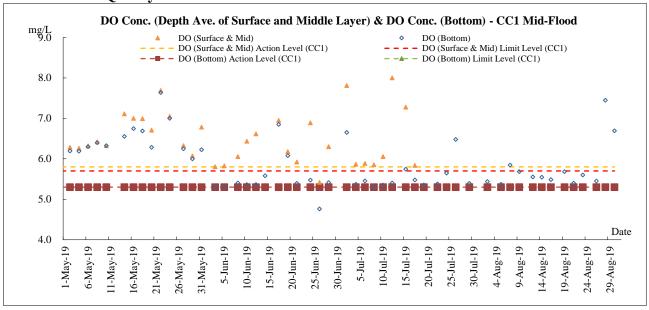


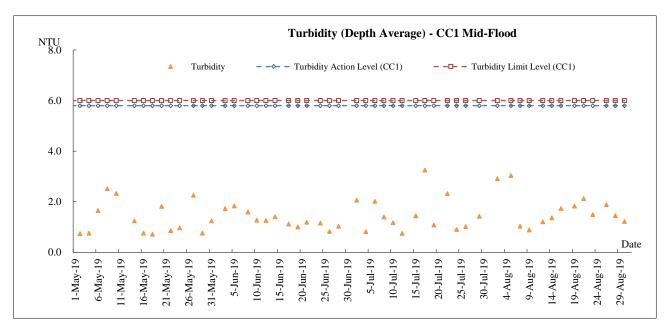


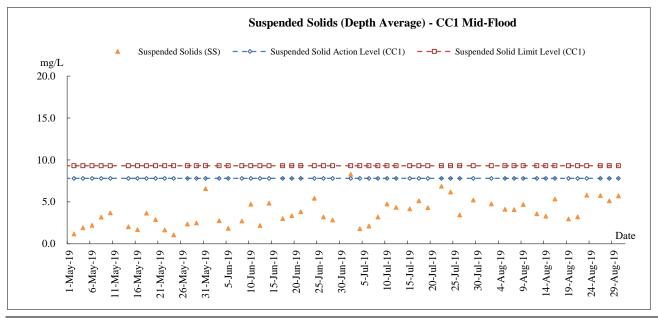




Marine Water Quality - CC1 Mid-Flood

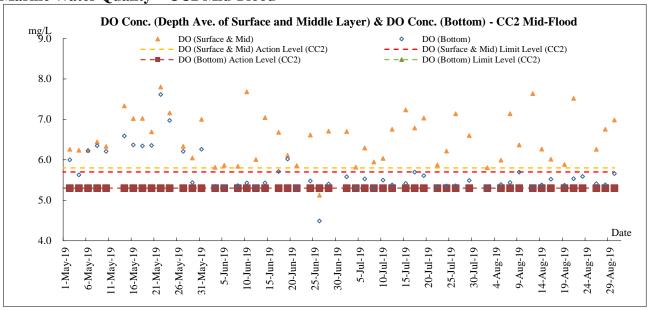


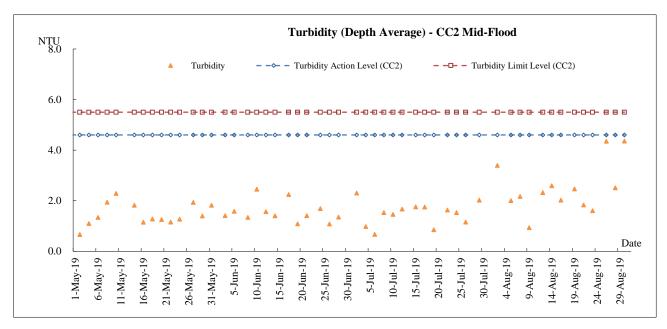


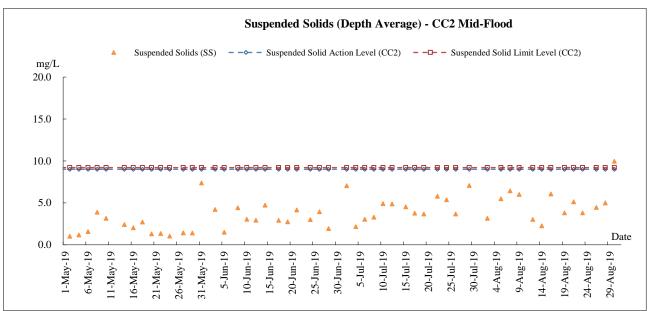




Marine Water Quality - CC2 Mid-Flood

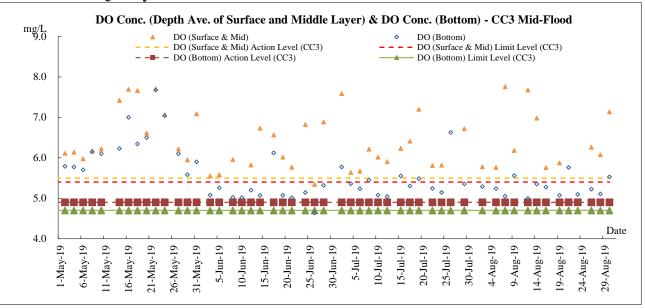


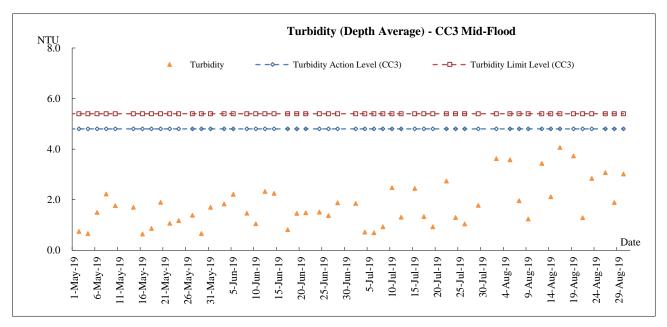


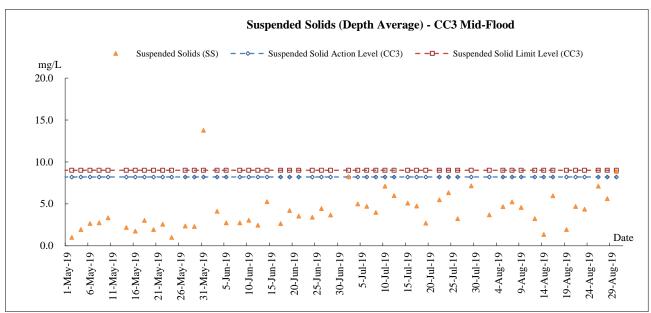




Marine Water Quality - CC3 Mid-Flood

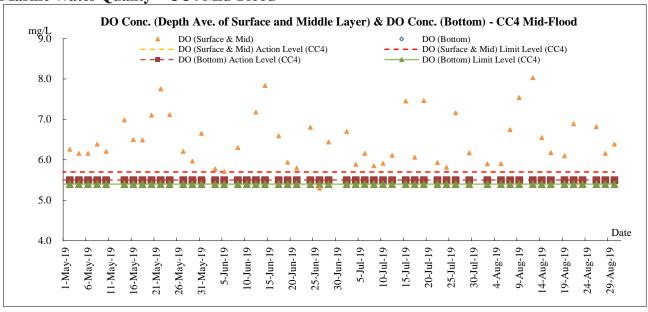


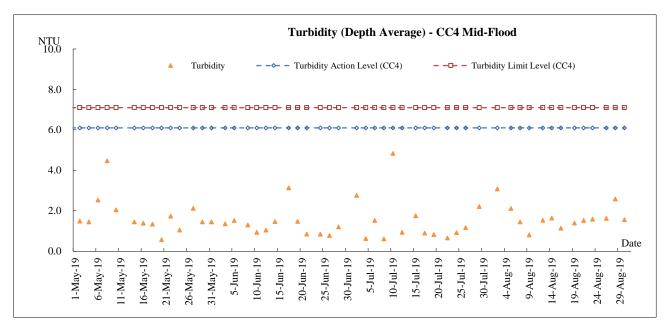


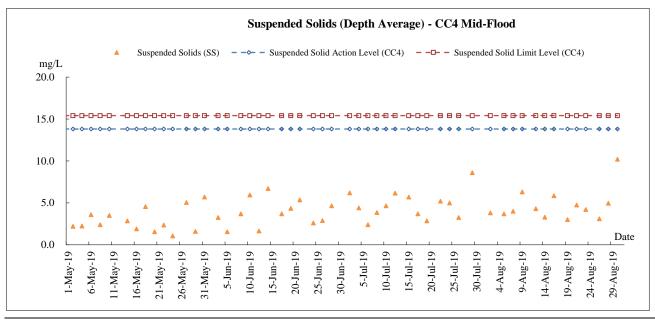




Marine Water Quality - CC4 Mid-Flood

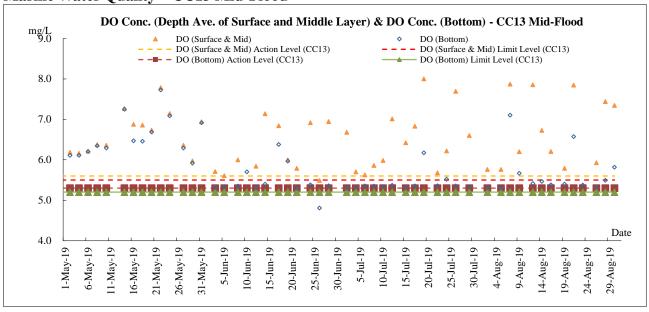


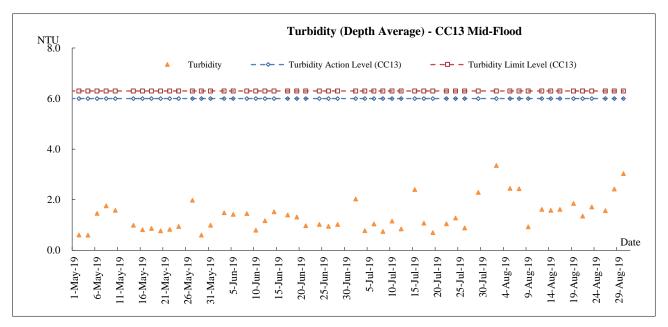


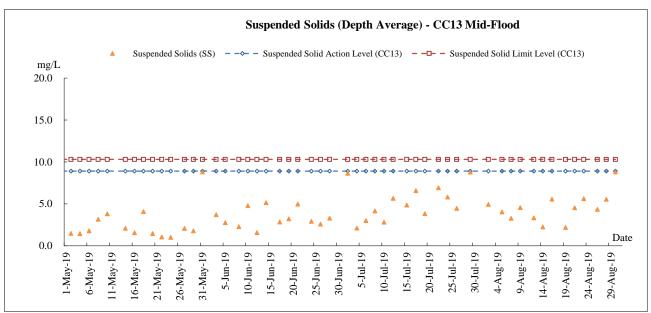




Marine Water Quality - CC13 Mid-Flood

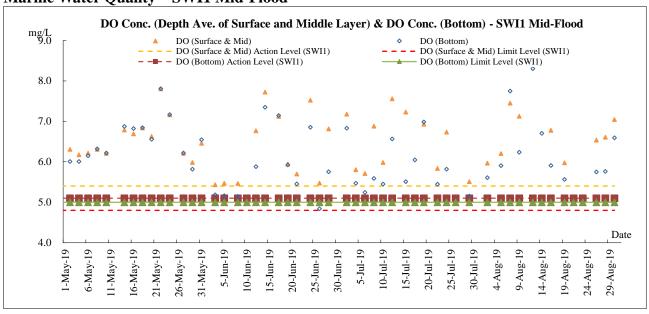


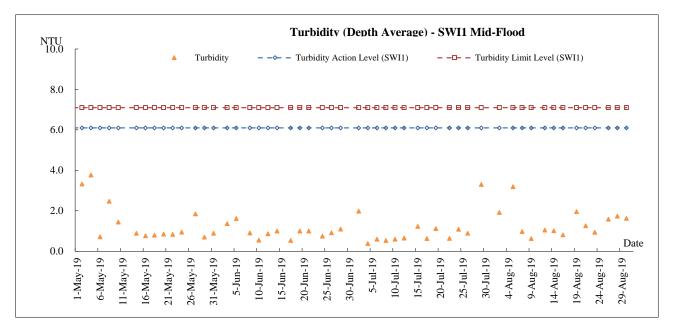


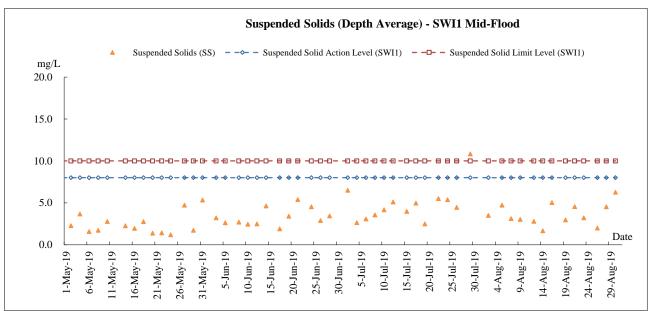




Marine Water Quality - SWI1 Mid-Flood









Appendix F

Meteorological Information



The weather of June 2019

Mainly attributing to the warmer than normal sea surface temperature and stronger than usual southerly flow in the lower atmosphere over the northern part of the South China Sea, June 2019 was much hotter than usual in Hong Kong. The monthly mean temperature of 29.0 degrees was 1.1 degree above the normal figure of 27.9 degrees, one of the third highest on record for June. Moreover, the first half of this year from January to June 2019 was exceptionally warm. The mean temperature of 23.0 degrees, mean minimum temperature of 21.3 degrees and mean maximum temperature of 25.4 degrees were all the highest on record for the same period. The monthly rainfall of June 2019 was 429.1 millimetres, about 6 percent below the normal of 456.1 millimetres. The accumulated rainfall recorded in the first six months of the year was 1109.4 millimetres, slightly higher than the normal figure of 1096.9 millimetres for the same period.

The weather of July 2019

July 2019 was much hotter than usual in Hong Kong, mainly attributing to the warmer than normal sea surface temperature over the northern part of the South China Sea. The monthly mean minimum temperature of 27.7 degrees was 0.9 degree above the normal figure of 26.8 degrees, the highest on record for July. The monthly mean temperature of 29.5 degrees was 0.7 degree above the normal figure of 28.8 degrees, one of the sixth highest on record for July. The month was also cloudier than usual with the mean amount of cloud of 79%, about 10% above the normal figure of 69% and one of the fifth highest on record for July. The duration of bright sunshine in the month was only 150.5 hours, about 29% below the normal figure of 212.0 hours and the seventh lowest on record for July. The monthly rainfall was 328.5 millimetres, about 13 percent below the normal of 376.5 millimetres. The accumulated rainfall recorded in the first seven months of the year was 1437.9 millimetres, slightly lower than the normal figure of 1473.3 millimetres for the same period.

The weather of August 2019

August 2019 was hotter than usual in Hong Kong, mainly attributing to the warmer than normal sea surface temperature over the northern part of the South China Sea. The monthly mean temperature of 29.0 degrees was 0.4 degree above the normal figure of 28.6 degrees. Moreover, the summer of this year from June to August was exceptionally hot. The mean minimum temperature of 27.2 degrees, mean temperature of 29.2 degrees and mean maximum temperature of 31.8 degrees were respectively the second, third and fourth highest on record for the same period. Due to the heavy rain brought by tropical cyclones Wipha and Bailu, the month was wetter than normal with the monthly total rainfall amounting to 596.4 millimetres, about 38 percent above the normal figure of 432.2 millimetres. The accumulated rainfall recorded in the first eight months of the year was 2034.3 millimetres, a surplus of 7 percent compared to the normal of 1905.5 millimetres for the same period.

*The detailed meterological data for each successive day can be referred to in the Monthly EM&A Reports (June 2019, July 2019, and August 2019).



Appendix G

Waste Flow Table

CEDD Contract Agreement No. EDO/04/2018 -Environmental Team for Cross Bay Link, Tseung Kwan O Quarterly EM&A Summary Report (June to August 2019)



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

		ctual Quantitie	es of Inert C&I		nly	Actual Quantities of C&D Wastes Generated Monthly						
Month	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	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:

- For non-inert portion of C&D material, assume the density of 1 m³ general refuse is equal to 200 kg. For inert portion of C&D material, assume 6 m³ per each full-filled dump truck.
- 3. All values are round off to the third decimal places.

Monthly Summary Waste Flow Table for <u>2019</u> (year)

Name of Person completing the record: <u>Calvin So (EO)</u>

Project: Cross Bay Link, TKO, Main Bridge and Associated Works Contract No.: NE/2017/07												
	A	ctual Quantitie	s of Inert C&I	D Materials G	nly	Actua	al Quantities o	of C&D Waste	es Generated M	Ionthly		
Month	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	1.026 0.000 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												
Oct												
Nov												
Dec												
Total	6.439	0.000	0.000	0.000	6.439	0.000	0.000	0.909	0.000	0.000	0.439	

Note:

- For non-inert portion of C&D material, assume the density of 1 m³ general refuse is equal to 200 kg. For inert portion of C&D material, assume 6 m³ per each full-filled dump truck.
- 3. All values are round off to the third decimal places.

CEDD Contract Agreement No. EDO/04/2018 -Environmental Team for Cross Bay Link, Tseung Kwan O Quarterly EM&A Summary Report (June to August 2019)



Contract 2

Monthly Summary Waste Flow Table for 2019 Year

	Actual Quantities of Inert C&D Materials Generated Monthly							Actual Quantities of C&D Wastes Generated Monthly					
Month	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													
Oct													
Nov													
Dec				·									
TOTAL	15.116	0.000	0.358	0.000	14.030	0.728	0.000	0.000	0.000	0.000	1.403		

Note: Conversion to 1000m³ for general refuse is weight in 1000kg multiply by 0.002

Conversion to 1000m³ for Inert C&D is weight in 1000kg multiply by 0.0005 $Plastics\ refer\ to\ plastic\ bottles\ /\ containers,\ plastic\ sheets\ /\ foam\ from\ packaging\ material$ Plastics refer to plastic bottles / containers, plastic sheets / foam from packaging material

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



Appendix H

Complaint Summary

Complaint Summary for Cross Bay Link, Tseung Kwan O

Log ref.	('omnlaint	•	Complaint nature	Complaint details	Follow up action
1	14-Mar-19	Junk Bay		discharged from work barges under CBL between 7:00 - 10pm. The complainant said he observed the act	According to ET's investigation, Contractor of Contract 1 (CRBC) had provided proper water mitigation measures to minimize the water impact of marine piling work to the nearby waterbody. No abnormal and turbid water discharged from site was observed. Nevertheless, the Contractor of Contract 1 was reminded to strictly implement all the water mitigation measures as stated in EP and EM&A Manual and ET will keep closely inspect the site condition in subsequent weekly site inspection.



Appendix I

Implementation Schedule for Environmental Mitigation Measures



		Objectives of the	Location/ Timing	Implementation		Requirements	
EIA Ref	Environmental Protection Measures/ Mitigation Measures			Agent	Stage	and/or Standards to	
		Main Concerns to Address		1 agent	2 mgc	be Achieved	
	ct (Contraction Phase)				T = .		
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		Contractor	Construction stage	APCO (Cap. 311); and Air Pollution Control (Construction Dust) Regulation	
\$5.5.5.3	 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	



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 where the exposed earth lies. S5.5.5.5.4 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. Good construction site practices to control the dust impact on the nearby sensitive receivers to within the relevant criteria			Objectives of the		Implementation		Requirements
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 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.	EIA Ref	Environmental Protection Measures/ Mitigation Measures	Recommended Measures &	Location/ Timing	Agent	Stage	and/or Standards to
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. S55.5.5.4 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. Site compound Contractor Construction stage and Air Cointrol Cointrol			Main Concerns to Address		1180110	~ge	be Achieved
S5.5.4 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. Good construction site practices to control the dust impact on the nearby sensitive receivers to within the relevant criteria Site compound Contractor Stage • Air Control Construction stage Air Control Construction stage Air Control Construction stage Air Control Construction stage		 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 					oc more en
point.	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 	practices to control the dust impact on the nearby sensitive receivers to	Site compound	Contractor		• Air Pollution
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. 24-Hr TSP levels at the representative dust monitoring station (Drawing no. 209506/EMA/ AIR/001) stage and • Air Control (Construction dust impacts are controlled to within the monitoring stations to ensure compliance with AIR/001)		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.	24-Hr TSP levels at the representative dust monitoring stations to ensure compliance with relevant criteria throughout	dust monitoring station (Drawing no. 209506/EMA/	Contractor		• Air Pollution



		Objectives of the		Implen	nentation	Requirements	
EIA Ref	Environmental Protection Measures/ Mitigation Measures	Recommended Measures & Main Concerns to Address	Location/ Timing	Agent	Stage	and/or Standards to be Achieved	
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		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		CEDD/ Contractor	During operational stage	• Annex 5, TM-EIAO	



		Objectives of the		Implementation		Requirements
EIA Ref	Environmental Protection Measures/ Mitigation Measures	Recommended Measures &	Location/ Timing	Agent	Stage	and/or Standards to
***		Main Concerns to Address		1190110	~ge	be Achieved
	lity Impact (Contraction Phase)			Γ ~		
S8.6.4.3	Marine Piling and Pile Excavation Works Marine piling and	To control potential		Contractor	Construction	• TM-EIAO; and
	pile excavation works shall be undertaken in such a manner as	impacts from marine piling			stage	• WPCO
	to minimize re-suspension of sediments. Standard good	and pile excavation works	works			
	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.					
S8.6.4.4	Construction Site Runoff	Control potential water	All construction sites	Contractor	Construction	TM-EIAO; and
50.0.1.1	In accordance with the Practice Note for Professional Persons	quality impacts from			stage	• WPCO
	on Construction Site Drainage, Environmental Protection	construction site run-off				
	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					



		Objectives of the		Implementation		Requirements	
EIA Ref	Environmental Protection Measures/ Mitigation Measures	Recommended Measures & Main Concerns to Address	Location/ Timing	Agent	Stage	and/or Standards to be Achieved	
	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	



		Objectives of the		Impler	nentation	Requirements
EIA Ref	Environmental Protection Measures/ Mitigation Measures	Recommended Measures & Main Concerns to Address	Location/ Timing	Agent	Stage	and/or Standards to be Achieved
	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 Mai	nagement (Contraction Phase)					
\$9.5.2	 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



		Objectives of the		Implen	nentation	Requirements
EIA Ref	Environmental Protection Measures/ Mitigation Measures	Recommended Measures &	Location/ Timing	Agent	Stage	and/or Standards to
50.5.4	W. A. D. J. A. M. S. S. S.	Main Concerns to Address	A 11		_	be Achieved
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



		Objectives of the		Implementation		Requirements
EIA Ref	Environmental Protection Measures/ Mitigation Measures	Recommended Measures & Main Concerns to Address	Location/ Timing	Agent	Stage	and/or Standards to be Achieved
	authorities; andDisposal 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
\$9.5.13	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



		Objectives of the		Implementation		Requirements
EIA Ref	Environmental Protection Measures/ Mitigation Measures	Recommended Measures & Main Concerns to Address	Location/ Timing	Agent	Stage	and/or Standards to be Achieved
	 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.	To ensure proper management of chemical waste	All construction sites	Contractor	Construction stage	• Waste Disposal (Chemical Waste) (General) Regulation;
	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					Code of Practice on the Packaging, Labelling and Storage of Chemical Waste
	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; 					



		Objectives of the		Implen	nentation	Requirements	
EIA Ref	Environmental Protection Measures/ Mitigation Measures	Recommended Measures & Main Concerns to Address	Location/ Timing	Agent	Stage	and/or Standards to be Achieved	
	 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 	Main Concerns to Address		3		be Achieved	
S9.5.18	Be to a re-user of the waste, under approval from EPD. 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	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.	impacts 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	



		Objectives of the	7 (57)	Implementation		Requirements
EIA Ref	Environmental Protection Measures/ Mitigation Measures	Recommended Measures & Main Concerns to Address	Location/ Timing	Agent	Stage	and/or Standards to be Achieved
		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		



		Objectives of the		Implen	nentation	Requirements	
EIA Ref	Environmental Protection Measures/ Mitigation Measures	Recommended Measures & Main Concerns to Address	Location/ Timing	Agent	Stage	and/or Standards to be Achieved	
	 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 						
\$13.8.1.2	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.	construction and operational		
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	construction		



		Objectives of the		Implen	nentation	Requirements
EIA Ref	Environmental Protection Measures/ Mitigation Measures	Recommended Measures & Main Concerns to Address	Location/ Timing	Agent	Stage	and/or Standards to be Achieved
	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 G						
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 	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)



		Objectives of the		Implen	nentation	Requirements
EIA Ref	Environmental Protection Measures/ Mitigation Measures	Recommended Measures & Main Concerns to Address	Location/ Timing	Agent	Stage	and/or Standards to be Achieved
	 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 			Agent	Stage	



EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements
				Agent	Stage	and/or Standards to be Achieved
	 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 	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	following section, then evacuation shall be initiated. Emergency management	Health and safety of the	Confined space of	Contractor	Construction	• Landfill Gas
	In the event of the trigger levels specified in Table 14.6 of the EIA report being exceeded, a person, such as the Safety	workers	construction sites within 250m Consultation Zone		stage	Hazard Assessment



EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation		Requirements
				Agent	Stage	and/or Standards to be Achieved
	Officer, shall be nominated, with deputies, to be responsible for dealing with any emergency which may occur due to LFG.					Guidance Note (EPD/TR8/97)
	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.					
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