

**JOB NO.: TCS00975/18** 

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

MONTHLY ENVIRONMENTAL MONITORING & AUDITING REPORT OF THE PROJECT – OCTOBER 2021

PREPARED FOR CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT (CEDD)

Date	<b>Reference No.</b>	Prepared By	Certified By
11 November 2021	TCS00975/18/600/R0582v2	Http	Am

Martin Li (Environmental Consultant)

Tam Tak Wing (Environmental Team Leader)

Version	Date	Remarks
1	5 November 2021	First Submission
2	11 November 2021	Amended against IEC's comments
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Acuity Sustainability Consulting Limited – Nature & Technologies (HK) Limited Joint Venture



Our ref: PL-202111020

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

11 November 2021

Dear Sir,

Contract No. NE/2017/07 & NE/2017/08 Cross Bay Link, Tseung Kwan O Monthly EM&A Report for October 2021

I refer to the email of the ET concerning the Monthly EM&A Report for October 2021 (Version 2) with Ref. No. TCS00975/18/600/R0582v2. We have no adverse comment on it and verify the captioned according to Conditions 1.9 and 4.4 of Environmental Permit with No. EP-459-2013.

Yours faithfully,

Li Wai Ming Kevin Independent Environmental Checker

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



## **EXECUTIVE SUMMARY**

- ES01 Civil Engineering and Development Department (hereafter referred as "CEDD") is the Project Proponent and the Permit Holder of the Project Cross Bay Link, Tseung Kwan O (hereinafter referred as "the Project") which is a Designated Project to be implemented under Environmental Permit number EP-459/2013 (hereinafter referred as "the EP-459/2013" or "the EP").
- ES02 AUES was awarded the CEDD Contract Agreement No. EDO/04/2018 Environmental Team for Cross Bay Link, Tseung Kwan O (hereinafter called "the Service Contract"). The Services under the Service Contract is to provide environmental monitoring and audit (EM&A) services for the Works Contracts pursuant to the requirement of Environmental Team (ET) under the Approved EM&A Manual to ensure that the environmental performance of the Works Contracts comply with the requirement specified in the EM&A Manual and EIA Report of Agreement No. CE 43/2008 (HY) Cross Bay Link, Tseung Kwan O - Investigation and other relevant statutory requirements.
- ES03 To facilitate management, the proposed Works of the project was divided into two Civil Engineering and Development Department (CEDD) Works contracts included Contract 1 (Contract No. NE/2017/07) and Contract 2 (Contract No. NE/2017/08). The date for commencement of Contract 1 was 3<sup>rd</sup> December 2018 while the date for commencement of Contract 2 was 17<sup>th</sup> January 2019.
- ES04 According to the Approved Environmental Monitoring & Audit (EM&A) Manual, air quality, noise and water quality monitoring are required to be conducted during the construction phase of the Project. As part of the EM&A programme, baseline monitoring shall undertake before the Project construction work commencement to determine the ambient environment condition. The baseline air quality, background noise and water quality monitoring has been carried out between 21<sup>st</sup> September 2018 and 13<sup>th</sup> 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 19<sup>th</sup> November 2018 for endorsement.
- ES05 This is the **35<sup>th</sup>** Monthly EM&A report presenting the monitoring results and inspection findings for the reporting period from *1* to *31 October 2021* (hereinafter 'the Reporting Period').

#### CONSTRUCTION WORKS CONDUCTED AT THE REPORTING MONTH

- ES06 The major construction activities of Contract 1 (Contract No. NE/2017/07) undertaken in this Reporting Period are:-
  - Predrilling, Pilling Work, Precast Segment Fabrication, Precast Shell Installation at Portion I
  - E&M Work and External Work at Portion V Plant Room Building
- ES07 The major construction activities of Contract 2 (Contract No. NE/2017/08) undertaken in this Reporting Period are:-
  - UU Diversion
  - Monitoring and Instrumentation Works
  - Construction of Drainage Works at Portion I & III
  - RC construction for U-trough at Portion I & III
  - Column, wall and deck construction at Elevated Deck
  - RC construction for Type 2 Wave wall
  - RC construction for Type 1 Wave wall
  - ELS along Wan O Road
  - RC construction of foundation at Wan O Road
  - RC construction for lift shaft and staircase
  - Utilities installation along At Grade Road
  - SENB installation at At-Grade Road
  - Road Work along Wan Po Road



#### **ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES**

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

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

Issues	Enviro	nmental Monitoring Parameters / Inspection	Sessions
Air Quality	1-Hour TSF	36	
Air Quality	24-Hr TSP		9
	Leq (30min	) Daytime	12
Construction Noise		Evening <sup>(Note 1)</sup>	0
	Leq (5min)	0	
Water Quality	Marine Wat	0	
Inspection / Audit	Contract 1	ET Regular Environmental Site Inspection	4
	Contract 1	Joint site audit with Project Consultant and IEC	1
	Contract 2	ET Regular Environmental Site Inspection	4
		Joint site audit with Project Consultant and IEC	1

Note 1 Total sessions are counted by every 3 consecutive Leq5min

*Note 2 Total sessions are counted by monitoring days* 

*Note 3* Since the marine construction works that requires marine water quality monitoring as stated in the EM&A Manual were completed, the impact water quality monitoring was ceased with effect from 1 May 2020.

## **BREACH OF ACTION AND LIMIT (A/L) LEVELS**

ES09 No air quality monitoring exceedance was recorded in this Reporting Period. For construction noise monitoring, no noise monitoring exceedance was recorded in this Reporting Period. The statistics of environmental exceedance and investigation of exceedance are summarized in the following table.

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

Environmental	Monitoning	Action	Limit	Event & Action		
Issues	Parameters	Action Level	Level	Investigation Results	<b>Corrective Actions</b>	
Air Quality	1-Hour TSP	0	0			
	24-Hr TSP	0	0			
Construction Noise	Leq <sub>30min</sub> Daytime	0	0			
	Leq <sub>5min</sub> Evening	0	0			
	Leq <sub>5min</sub> Night	0	0			
Water Oraliter	DO	0	0			
Water Quality (Marine Water)	Turbidity	0	0			
(Marine Water)	SS	0	0			



#### **ENVIRONMENTAL COMPLAINT**

**ES10** In the reporting period, no environmental complaints was recorded for the Project. The statistics of environmental complaint are summarized in the following table.

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

Reporting	Controot	Enviro	Related with the		
Period	Contract	Frequency	Cumulative	<b>Complaint Nature</b>	Works Contract(s)
1 – 31 October	1	0	24	NA	NA
2021	2	0	15	NA	NA

#### NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES11 No environmental summons or prosecutions was received in this Reporting Period for the Project. The statistics of environmental summons or prosecutions are summarized in the following tables.

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

Reporting	Contract	Environmental Summons Statistics			Related with the
Period	Contract	Frequency	Cumulative	<b>Complaint Nature</b>	Works Contract(s)
1 – 31 October	1	0	0	NA	NA
2021	2	0	0	NA	NA

Tuble Lb 0 - Summary Linvironmental i rosecutions Records in the Reporting i criou	Table ES-8	Summary Environmental Prosecutions Records in the Reporting Period
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Reporting	Contract	Environ	Related with the		
Period	Contract	Frequency	Cumulative	<b>Complaint Nature</b>	Works Contract(s)
1 – 31 October	1	0	0	NA	NA
2021	2	0	0	NA	NA

#### **REPORTING CHANGE**

ES12 There is no reporting change made for this monthly report.

#### SITE INSPECTION BY EXTERNAL PARTIES

ES13 No site inspection was undertaken AFCD within the Reporting Period. EPD site inspection was undertaken on 12 October 2021.

#### FUTURE KEY ISSUES

- ES14 Due to the coming month is dry and windy season for Hong Kong, the Contractor was reminded that all the works to undertaking must be fulfill environmental statutory requirement, especially construction dust come from working sites of the Project.
- ES15 Construction noise would be the key environmental issue as Lohas Park Phase 4 & 6 were already available for resident occupation. The noise mitigation measures such as use of quiet plants and installation of temporary noise barrier at the construction noise predominate area should be fully implemented in accordance with the EM&A requirement.



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## 1. INTRODUCTION

#### 1.1 **PROJECT BACKGROUND**

- 1.1.1 Civil Engineering and Development Department (hereafter referred as "CEDD") is the Project Proponent and the Permit Holder of the Project Cross Bay Link, Tseung Kwan O (hereinafter referred as "the Project") which is a Designated Project to be implemented under Environmental Permit number EP-459/2013 (hereinafter referred as "the EP-459/2013" or "the EP").
- 1.1.2 AUES was awarded the CEDD Contract Agreement No. EDO/04/2018 Environmental Team for Cross Bay Link, Tseung Kwan O (hereinafter called "the Service Contract"). The Services under the Service Contract is to provide environmental monitoring and audit (EM&A) services for the Works Contracts pursuant to the requirement of Environmental Team (ET) under the Approved EM&A Manual to ensure that the environmental performance of the Works Contracts comply with the requirement specified in the EM&A Manual and EIA Report of Agreement No. CE 43/2008 (HY) Cross Bay Link, Tseung Kwan O - Investigation and other relevant statutory requirements.
- 1.1.3 To facilitate management, the proposed Works of *Cross Bay Link, Tseung Kwan O* (hereinafter called "the Project") was divided into two Civil Engineering and Development Department (CEDD) Works contracts included *Contract 1 (Contract No. NE/2017/07)* and *Contract 2 (Contract No. NE/2017/08)*. The details of each contract Works are summarized below and the delineation of each contract is shown in *Appendix A*.

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

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

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

- (i) Elevated deck structures along Road D9;
- (ii) A 210m section of cycle track and footpath ramp bridge;
- (iii) A 630m section of noise semi-enclosure covering the entire length of Road D9, and;
- (iv) Lift, staircase, modification of existing seawall along Road D9, landscaping and miscellaneous works.
- 1.1.4 The date for commencement of Contract 1 is  $3^{rd}$  December 2018 while the date for commencement of Contract 2 is  $17^{th}$  January 2019.
- 1.1.5 As part of the EM&A programme, baseline monitoring shall be undertaken before the Project construction work commencement to determine the ambient environmental condition. The baseline air quality, background noise and water quality monitoring has been carried out between **21**<sup>st</sup> September 2018 and 13<sup>th</sup> 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 19<sup>th</sup> November 2018 for endorsement.
- 1.1.6 This is the **35<sup>th</sup>** Monthly EM&A report presenting the monitoring results and inspection findings for the reporting period from *1* to *31 October 2021* (hereinafter 'the Reporting Period').

#### **1.2 REPORT STRUCTURE**

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

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



Section 5	Construction Noise Monitoring
Section 6	Water Quality Monitoring
Section 7	Waste Management
Section 8	Site Inspections
Section 9	Landfill Gas Monitoring
Section 10	Environmental Complaints and Non-Compliance
Section 11	Implementation Status of Mitigation Measures
Section 12	Conclusions and Recommendations

## 2. PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS AND SUBMISSION

### 2.1 **PROJECT ORGANIZATION**

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

## The Project Consultant

- 2.1.2 The Project Consultant (hereinafter "the Consultant") is responsible for overseeing the construction works and for ensuring that the works are undertaken by the Contractor in accordance with the specification and contract requirements. The duties and responsibilities of the Consultant with respect to EM&A are:
  - Monitor the Contractors' compliance with contract specifications, including the implementation and operation of the environmental mitigation measures and their effectiveness
  - Monitor Contractors', ET's and IEC's compliance with the requirements in the Environmental Permit (EP) and EM&A Manual
  - Facilitate ET's implementation of the EM&A programme
  - Participate in joint site inspection by the ET and IEC
  - Oversee the implementation of the agreed Event / Action Plan in the event of any exceedance
  - Adhere to the procedures for carrying out complaint investigation

#### The Contractor(s) of Works Contract(s)

- 2.1.3 There will be one contractor for each individual works contract. The Contractor(s) should report to the Consultant. The duties and responsibilities of the Contractor are:
  - Comply with the relevant contract conditions and specifications on environmental protection
  - Participate in the site inspections by the ET and IEC, and undertake any corrective actions
  - Provide information / advice to the ET regarding works programme and activities which may contribute to the generation of adverse environmental impacts
  - Submit proposals on mitigation measures in case of exceedances of Action and Limit levels in accordance with the Event / Action Plans
  - Implement measures to reduce impact where Action and Limit levels are exceeded
  - Adhere to the procedures for carrying out complaint investigation

## Environmental Team (ET)

- 2.1.4 ET shall not be in any way an associated body of the Contractor(s) and employed by the Permit Holder (i.e., CEDD) to conduct the EM&A programme. The ET should be managed by the ET Leader. The ET Leader shall be a person who has at least 7 years' experience in EM&A and has relevant professional qualifications. Suitable qualified staff should be included in the ET, and resources for the implementation of the EM&A programme should be allocated in time under the Contract(s), to enable fulfillment of the Project's EM&A requirements as specified in the EM&A Manual during construction of the Project. ET shall report to the Project Proponent and the duties shall include:
  - Conduct baseline monitoring, impact monitoring and post-construction monitoring and the associated in-situ and laboratory tests to monitor various environmental parameters as required in the EM&A Manual and the EP
  - Analyze the environmental monitoring and audit data, review the success of EM&A programme and the adequacy of mitigation measures implemented, confirm the validity of the EIA predictions and identify any adverse environmental impacts arising
  - Carry out regular site inspection to investigate and audit the Contractors' site practice, equipment/plant and work methodologies with respect to pollution control and environmental mitigation, and effect proactive action to pre-empt problems
  - Monitor compliance with conditions in the EP, environmental protection, pollution prevention and control regulations and contract specifications
  - Audit environmental conditions on site

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

# Independent Environmental Checker (IEC)

- 2.1.5 IEC will be employed for this Project. The Independent Environmental Checker (IEC) should not be in any way an associated body of the Contractor(s) or the ET for the Project. The IEC should be employed by the Permit Holder (i.e., CEDD) prior to the commencement of the construction of the Project. The IEC should have at least 7 years' experience in EM&A and have relevant professional qualifications. The duty of IEC should be:
  - Provide proactive advice to the Project Consultant and the Project Proponent on EM&A matters related to the project, independent from the management of construction works, but empowered to audit the environmental performance of construction
  - Review and audit all aspects of the EM&A programme implemented by the ET
  - Review and verify the monitoring data and all submissions in connection with the EP and EM&A Manual submitted by the ET
  - Arrange and conduct regular, at least monthly site inspections of the works during construction phase, and ad hoc inspections if significant environmental problems are identified
  - Check compliance with the agreed Event / Action Plan in the event of any exceedance
  - Check compliance with the procedures for carrying out complaint investigation
  - Check the effectiveness of corrective measures
  - Feedback audit results to ET by signing off relevant EM&A proforma
  - Check that the mitigation measures are effectively implemented
  - Report the works conducted, the findings, recommendation and improvement of the site inspections, after reviewing ET's and Contractor's works, and advices to the Project Consultant and Project Proponent on a monthly basis

## 2.2 CONSTRUCTION PROGRESS

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

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

- 2.2.2 The major construction activities of Contract 1 undertaken in this Reporting Period are:-
  - Predrilling, Pilling Work, Precast Segment Fabrication, Precast Shell Installation at Portion I
    - E&M Work and External Work at Portion V Plant Room Building

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

- 2.2.3 The major construction activities of Contract 2 undertaken in this Reporting Period are:UU Diversion
  - Monitoring and Instrumentation Works
  - Construction of Drainage Works at Portion I & III



- RC construction for U-trough at Portion I & III
- Column, wall and deck construction at Elevated Deck
- RC construction for Type 2 Wave wall
- RC construction for Type 1 Wave wall
- ELS along Wan O Road
- RC construction of foundation at Wan O Road
- RC construction for lift shaft and staircase
- Utilities installation along At Grade Road
- SENB installation at At-Grade Road
- Road Work along Wan Po Road

## 2.3 SUMMARY OF ENVIRONMENTAL SUBMISSIONS

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

#### Table 2-1 Documents Submission under Environmental Permit Requirement

EP condition	Submission to EPD	Requirement	Situation
		no later than 1 month prior to the commencement of construction of the Project	
	the Community Liaison	At least 1 month before the commencement of construction of the Project	_
	Organization of Main	No later than 2 weeks before the commencement of construction of the Project	0
2.5	Waste Management Plan (WMP)	No later than 1 month before commencement of construction of the Project	• WMP of Contract 1 was
	Landscape Mitigation Plan (LSMP)	No later than 1 month before commencement of construction of the Project	<ul> <li>LSMP was submitted on 1 Nov 2018</li> </ul>
	Landfill Gas Hazards	No later than 1 month before commencement of construction of the Project	<ul> <li>QLGHA of the Project was submitted to EPD on 1 November 2018</li> </ul>

- 2.3.2 Upon completed baseline monitoring, a Baseline Monitoring Report was verified by IEC on 19 November 2018 and submitted to EPD on that day for endorsement.
- 2.3.3 The notification of Project dedicated web site to EPD was made on 9 January 2019 (http://www.envcbltko.hk/).
- 2.3.4 Summary of the relevant permits, licenses, and/or notifications on environmental protection for the Project are presented in *Table 2-2*.



		License/Permit Status				
Item	Description	Permit no./	Valid	Period		
Item	Description	Account no./ Ref. no.	From	То	Status	
1	Notification pursuant to Air pollution Control (Construction Dust) Regulation				Notified on 11 July 2018	
2	Chemical Waste Producer Registration	5213-839-C1232 -19	28 Aug 2018	N/A		
3	Water Pollution Control Ordinance - Discharge	WT00032842-20 18	1 Mar 2019	31 Mar 2024	Valid until 31 March 2024	
	License	WT00034178-20 19	15 Jul 2019	31 Jul 2024	Valid until 31 July 2024	
4	BillingAccountforDisposalofConstruction Waste	7031412	24 Jul 2018	N/A		
5	Construction Noise	GW-RE0848-21	2 Sep 2021	1 Nov 2021	Valid until 25 Oct 2021	
5	Permit	GW-RE1056-21	26 Oct 2021	25 Feb 2022	Valid until 25 Feb 2022	

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

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

		License/Permit Status				
Item	Description	Permit no./	Valid 1	Period	Status	
Item	Description	Account no./ Ref. no.	From	То		
1	Notification pursuant to Air pollution Control (Construction Dust) Regulation				Notified on 31 October 2018	
2	Chemical Waste Producer Registration	5213-839-B2500 -04	22 Nov 2018	N/A		
3	Water Pollution Control Ordinance - Discharge License	WT00034244-20 19	8 Jul 2019	31 Jul 2024	Valid until 31 July 2024	
4	Billing Account for Disposal of Construction Waste	7032702	8 Nov 2018	N/A		
5	Construction Noise Permit	GW-RE0453-21	14 May 2021	13 Nov 2021	Valid until 13 Nov 2021	

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

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



# 3. SUMMARY OF ENVIRONMENTAL MONITORING PROGRAMMES AND REQUIREMENTS

## 3.1 GENERAL

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

## 3.2 MONITORING PARAMETERS

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

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

# Table 3-1 Summary of EM&A Requirements

## 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	<b>Currently Situation</b>
AM1	Tung Wah Group of Hospitals Aided Primary School & Secondary School	Not yet construct
AM2	Lohas Park Stage 2 (Planned Development in Area 86)	Available for resident occupation in February 2021
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 Manual

ID	Location	Currently Situation		
CNMS-1	Lohas Park Stage 1(Planned Development in Area 86, Package 4) (Southeast facade)	Available for resident occupation in November 2019		
CNMS-2	Lohas Park Stage 1 (Planned Development in Area 86, Package 6) (Southeast facade)	Available for resident occupation in February 2021		
CNMS-3	Lohas Park Stage 3 (Planned Development in Area 86,Package 11) (West facade)	Under Construction		
CNMS-4	Tung Wah Group of Hospitals Aided Primary School & Secondary School (Southwest facade)	Not yet construct		

3.3.2 As observed and confirmed by ET and IEC during the joint site visit on 29<sup>th</sup> August 2018, the designated air quality and noise monitoring locations are under construction or yet to construct. It is considered that these designated locations are not appropriate to perform air quality and noise monitoring. In this regard, alternative locations were proposed as interim arrangement to carry out



air quality and noise monitoring before occupation of the designated monitoring location. A letter enclosed with the alternative location proposal and IEC verification (Our Ref: TCS00975/18/300/L0038) was sent to EPD on 19<sup>th</sup> 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 1-Hour TSP air quality and construction noise monitoring was commenced in February 2021 regarding the handover of residential units to purchases for LP6. However, the installation of High Volume Sampler (HVS) for 24-Hour TSP is still pending approval from LP6 property management team. Therefore, an interim alternative monitoring location AM2a was proposed near the LP 6 for the 24-Hour TSP monitoring during the request of HVS installation is being reviewed by LP6 Property Management Office.
- 3.3.4 The designated and interim alternative monitoring location for impact air quality and noise monitoring in the Reporting Period are summarized in Table 3-4 and illustrated in *Appendix D*.

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

Location ID	Monitoring Parameter	Location
AM2	1-Hour TSP Air Quality	Lohas Park Phase 6
AM2a	24-Hour TSP Air Quality	Near Lohas Park Phase 6
AM4	1-Hour TSP Air Quality	Podium of Lohas Park Phase 2A (Le Prestige)
AM5	24-Hour TSP Air Quality	Boundary of Site Office near Junction of Wan Po Road and Wan O Road
CNMS-1	Noise (L <sub>eq</sub> , L <sub>10</sub> & L <sub>90</sub> )	Podium of Lohas Park Package 4
CNMS-2	Noise (L <sub>eq</sub> , L <sub>10</sub> & L <sub>90</sub> )	Lohas Park Package 6
CNMS-5	Noise (L <sub>eq</sub> , L <sub>10</sub> & L <sub>90</sub> )	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

3.3.5 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	Coord	linates	Description
Station	Easting	Northing	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

- 3.4.2 Air quality impact monitoring frequency is as follows:
  - Once every 6 days of 24-hour TSP and 3 times of 1-hour TSP monitoring; during course of



works throughout the construction period

#### Construction Noise Monitoring

- 3.4.3 Construction noise monitoring frequency is as follows:
  - One set of Leq<sub>(30min)</sub> measurements in a weekly basis between 07:00 and 19:00 hours on normal weekdays during course of works as throughout the construction period
  - If construction works are extended to include works during the hours of 1900-0700, additional weekly impact monitoring shall be carried out during evening and night-time works. Applicable permits under the NCO shall be obtained by the Contractor.

### Water Quality (Marine Water) Monitoring

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

## 3.5 MONITORING EQUIPMENT

<u>Air Quality Monitoring</u>

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

	Equipment	Model
24-hour TSP	High Volume Air Sampler	TISCH High Volume Air Sampler, HVS Model TE-5170
	Calibration Kit	TISCH Model TE-5025A (S/N: 1941)
1- hour TSP	Portable Dust Meter	Laser Dust Monitor Sibata LD-3B Laser Dust Monitor (S/N: 3Y6503 & 366410)

Table 3-6Air Quality Monitoring Equipment

#### Noise Monitoring

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

 Table 3-7
 Construction Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	Rion NL-52 (S/N:00809405)
Calibrator	Rion NC-75 (S/N:34680623)
Portable Wind Speed Indicator	Anemometer AZ Instrument 8908

#### Water Quality Monitoring

- 3.5.3 For water quality monitoring, the equipment should fulfill the requirement under the Approved *EM&A Manual Section* 7.2. The requirement is summarized below:
  - **Dissolved Oxygen and Temperature Measuring Equipment** The instrument should be a portable, weatherproof dissolved oxygen measuring instrument completed with cable, sensor, comprehensive operation manuals, and should be operable from a DC power source. It should be capable of measuring: dissolved oxygen levels in the range of 0-20 mg/L and



0-200% saturation; and a temperature of 0-45 degrees Celsius. It should have a membrane electrode with automatic temperature compensation complete with a cable of not less than 35 m in length. Sufficient stocks of spare electrodes and cable should be available for replacement where necessary.

- **Turbidity Measurement Equipment** The instrument shall be a portable, weatherproof turbidity-measuring instrument complete with comprehensive operation manual. The equipment shall use a DC power source. It shall have a photoelectric sensor capable of measuring turbidity between 0-1000 NTU.
- *Salinity Measurement Instrument* A portable salinometer capable of measuring salinity in the range of 0-40 ppt should be provided for measuring salinity of the water at each monitoring location.
- *Water Depth Detector* A portable, battery-operated echo sounder should be used for the determination of water depth at each designated monitoring station. A detector affixed to the bottom of the works boat, if the same vessel is to be used throughout the monitoring programme, is preferred.
- **Positioning Device** hand-held or boat-fixed type digital Global Positioning System (GPS) with way point bearing indication or other equipment instrument of similar accuracy, should be provided and used during water quality monitoring to ensure the monitoring vessel is at the correct location before taking measurements.
- Water Sampling Equipment A water sampler, consisting of a transparent PVC or glass cylinder of not less than two liters, which can be effectively sealed with cups at both ends, should be used. The water sampler should have a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler is at the selected water depth.

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

## Table 3-8Water Monitoring Equipment

## 3.6 MONITORING PROCEDURES <u>Air Quality</u>

## 1-hour TSP

- 3.6.1 The 1-hour TSP monitor was a brand named "*Sibata LD-3 Laser Dust monitor Particle Mass Profiler & Counter*" which is a portable, battery-operated laser photometer. The 1-hour TSP meter provides a real time 1-hour TSP measurement based on 90° light scattering. The 1-hour TSP monitor consists of the following:
  - (a.) A pump to draw sample aerosol through the optic chamber where TSP is measured;
  - (b.) A sheath air system to isolate the aerosol in the chamber to keep the optics clean for maximum reliability; and
  - (c.) A built-in data logger compatible with Windows based program to facilitate data collection, analysis and reporting.

## 24-hour TSP

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



- (a.) An anodized aluminum shelter;
- (b.) A 8"x10" stainless steel filter holder;
- (c.) A blower motor assembly;
- (d.) A continuous flow/pressure recorder;
- (e.) A motor speed-voltage control/elapsed time indicator;
- (f.) A 7-day mechanical timer, and
- (g.) A power supply of 220v/50 Hz
- 3.6.3 For HVS for 24-hour TSP monitoring, the HVS is mounted in a metallic cage with a top for protection and also it is sat on the existing ground or the roof of building. The flow rate of the HVS between 0.6m<sup>3</sup>/min and 1.7m<sup>3</sup>/min will be properly set in accordance with the manufacturer's instruction to within the range recommended in *EPA Code of Federal Regulation, Appendix B to Part 50*. Glass Fiber Filter 8" x 10" of TE-653 will be used for 24-Hour TSP monitoring and would be supplied by laboratory. The general procedures of sampling are described as below:-
  - A horizontal platform with appropriate support to secure the samples against gusty wind should be provided;
  - No two samplers should be placed less than 2 meters apart;
  - The distance between the sampler and an obstacle, such as building, must be at least twice the height that the obstacle protrudes above the sample;
  - A minimum of 2 meters of separation from any supporting structure, measured horizontally is required;
  - Before placing any filter media at the HVS, the power supply will be checked to ensure the sampler work properly;
  - The filter paper will be set to align on the screen of HVS to ensure that the gasket formed an air tight seal on the outer edges of the filter. Then filter holder frame will be tightened to the filter hold with swing bolts. The holding pressure should be sufficient to avoid air leakage at the edge.
  - The mechanical timer will be set for a sampling period of 24 hours (00:00 mid-night to 00:00 mid-night next day). Information will be recorded on the field data sheet, which would be included the sampling data, starting time, the weather condition at current and the filter paper ID with the initial weight;
  - After sampling, the filter paper will be collected and transfer from the filter holder of the HVS to a sealed envelope and sent to a local HOKLAS accredited laboratory for quantifying.
- 3.6.4 All the sampled 24-hour TSP filters will be kept in normal air conditioned room conditions, i.e. 70% HR (Relative Humidity) and 25°C, for six months prior to disposal.
- 3.6.5 The HVS used for 24-hour TSP monitoring will be calibrated in two months interval for in accordance with the manufacturer's instruction using the NIST-certified standard calibrator (Tisch Calibration Kit Model TE-5025A) to establish a relationship between the follow recorder meter reading in cfm (cubic feet per minute) and the standard flow rate, Qstd, in m<sup>3</sup>/min. Motor brushes of HVS will be regularly replaced. The calibration certificates of the air quality monitoring equipment used for the impact monitoring and the HOKLAS accredited certificate of laboratory was provided in Appendix G.

#### **Noise Monitoring**

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



- 3.6.7 All noise measurements will be performed with the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level (Leq). Leq<sub>(30 min)</sub> in six consecutive Leq<sub>(5 min)</sub> measurements will be used as the monitoring parameter for the time period between 07:00-19:00 hours on weekdays throughout the construction period.
- 3.6.8 The sound level meter will be mounted on a tripod at a height of 1.2 m and placed at the assessment point and oriented such that the microphone is pointed to the site with the microphone facing perpendicular to the line of sight. The windshield will be fitted for all measurements. Where a measurement is to be carried out at a building, the assessment point would normally be at a position 1 m from the exterior of the building façade. Where a measurement is to be made for noise being received at a place other than a building, the assessment point would be at a position 1.2 m above the ground in a free-field situation, i.e. at least 3.5 m away from reflective surfaces such as adjacent buildings or walls.
- 3.6.9 Immediately prior to and following each noise measurement the accuracy of the sound level meter will be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements will be accepted as valid only if the calibration level from before and after the noise measurement agrees to within 1.0 dB.
- 3.6.10 Noise measurements will not be made in fog, rain, wind with a steady speed exceeding 5m/s or wind with gusts exceeding 10m/s. The wind speed will be checked with a portable wind speed meter capable of measuring the wind speed in m/s.
- 3.6.11 The sound level meter and calibrator are calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme at yearly basis. The calibration certificates of noise monitoring equipment used for the impact monitoring was provided in Appendix G.

## **Marine Water Quality**

- 3.6.12 Marine water quality monitoring would be conducted at all designated locations in accordance with Table 7.1 of the approved EM&A Manual. The procedures of water sampling, in-situ measurement and chemical analysis are described as below:
  - A Global Positioning System (GPS) will be used to ensure that the correct location was selected prior to sample collection. A portable, battery-operated echo sounder was used for the determination of water depth at each designated monitoring station.
  - The marine water sampler will be lowered into the water body at a predetermined depth. The trigger system of the sampler is activated with a messenger and opening ends of the sampler are closed accordingly then the sample of water is collected.
  - During the sampling, the sampling container will be rinsed to use a portion of the marine water sample before the water sample is transferred to the container. Upon sampling completion, the container will be sealed with a screw cap.
  - Before the sampling process, general information such as the date and time of sampling, weather condition and tidal condition as well as the personnel responsible for the monitoring will be recorded on the monitoring field data sheet.
  - In-situ measurement including water temperature, turbidity, dissolved oxygen, salinity, pH and water depth will be recorded at the identified monitoring station and depth. At each station, marine water samples will be collected at three depths: 1m below water surface, 1m above sea bottom and at mid-depth when the water depth exceeds 6m. Samples at 1m below water surface and 1m above sea bottom will be collected when the water depth is between 3m and 6m. And sample at mid-depth will be taken when the water depth is below 3m.
  - For the in-situ measurement, two consecutive measurements of sampling depth, temperature, dissolved oxygen, salinity, turbidity and pH concentration will be measured at the sea. The YSI ProDSS Multifunctional Meter will be retrieved out of the water after the first measurement and then re-deployed for the second measurement. Where the difference in the value between the first and second readings of each set is more than 25% of the value of the first reading, the reading is discarded and further readings is taken.



- Marine water sample will be collected by using a water sampler. The high-density polythene bottles will be filled after the water sample collected from the sea. Before the water sample being fills into the sampling bottles, the sampling bottles will be pre-rinsed with the same water sample. The sampling bottles will then be packed in cool-boxes (cooled at 4°C without being frozen), and delivered to HOKLAS accredited laboratory for the chemical analysis as followed APHA *Standard Methods for the Examination of Water and Wastewater* 19ed 2540D, unless otherwise specified.
- 3.6.13 Before each round of monitoring, the dissolved oxygen probe will be calibrated by wet bulb method; a zero check in distilled water will be performed with the turbidity and salinity probes. The turbidity probe also will be checked with a standard solution of known NTU and known value of the pH standard solution were used to check the accuracy of pH value before each monitoring day. Moreover, all in-situ measurement equipment used marine water monitoring will be calibrated at three months interval.

Laboratory Analysis

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

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

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

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

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

## **Meteorological Information**

- 3.6.16 The meteorological information including wind direction, wind speed, humidity and temperature etc. of impact monitoring is extracted from the closest Tseung Kwan O Hong Kong Observatory Station. Moreover, the data of rainfall and air pressure would be extracted from King's Park Station.
- 3.6.17 For marine water quality monitoring, tidal information would be referred to tide gauge at Tai Miu Wan.

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

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

Monitoring Station	Action Lev	vel (µg /m <sup>3</sup> )	Limit Level (µg/m <sup>3</sup> )		
Women ing Station	1-Hour TSP	24-Hr TSP	1-Hour TSP	24-Hr TSP	
AM2	278	NA	500	NA	
AM2a	NA	190	NA	260	
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 3-10Action & Limit Levels of Air Quality (1-Hour & 24-Hr TSP)



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

Monitoring Location	Action Level	Limit Level	
	Time Period: 0700-1900 hours o	n normal weekdays (Leq30min)	
CNMS-1	When one or more documented complaints are received	75 dB(A)	
CNMS-2 CNMS-5	Time Period: 1900-2300 hours on all days (Leq15min)		
	When one or more documented complaints are received	55 dB(A)	
Remarks:			
	e monitoring will be resumed at the desi	gnated locations CNMS-2, CNMS-3 and	

CNMS4 once they are available and permission are granted;

2. The designated locations 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 3-12Action and Limit Levels for Water Quality

Monitoring	Depth Average of SS (mg/L)					
Station	Actio	on Level	Li	mit Level		
CC1	7.8	<b>OR</b> 120% of upstream control	9.3	<b>OR</b> 130% of upstream control		
CC2	9.0	station at the same	9.2	station at the same		
CC3	8.2	tide of the same day (Control Station C3 at Ebb tide and	9.0	tide of the same day (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		
		Dissolved Oxy	gen (mg/L)			
Monitoring Location	Depth Average of S	Surface and Mid-depth		Bottom		
Location	Action Level	Limit Level	Action Leve	l Limit Level		
CC1	5.8	5.7	5.3	5.2		
CC2	5.8	5.7	5.3	5.1		
CC3	5.5	5.4	4.9	4.7		
CC4	5.7	5.7	5.5	5.4		
CC13	5.6	5.5	5.3	5.2		
SWI1	5.4	4.8	5.1	5.0		
Monitoring		Depth Average of Turbidity (NTU)				
Location	Actio	on Level	Li	mit Level		
CC1	5.8	<b>OR</b> 120% of	6.0	<b>OR</b> 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	5.4	tide of the same day		
CC4	6.1	(Control Station C3 at Ebb tide and	7.1	(Control Station C3 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		



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

## 3.8 DATA MANAGEMENT AND DATA QA/QC CONTROL

- 3.8.1 All monitoring data will be handled by the ET's in-house data recording and management system. The monitoring data recorded in the equipment will be downloaded directly from the equipment at the end of each monitoring day. The downloaded monitoring data will input into a computerized database properly maintained by the ET. The laboratory results will be input directly into the computerized database and checked by personnel other than those who input the data.
- 3.8.2 For monitoring parameters that require laboratory analysis, the local laboratory shall follow the QA/QC requirements as set out under the HOKLAS scheme for the relevant laboratory tests.

# 4. AIR QUALITY MONITORING

#### 4.1 GENERAL

- 4.1.1 As notified that Lohas Park Package 6 was available for resident occupation in late January 2021, air quality monitoring at designated monitoring location AM2 was therefore commenced in February 2021. Since the installation of High Volume Sampler for 24-Hour TSP monitoring is still under review by Property Management Team of Lohas Park Package 6, an interim alternative monitoring location AM2a was proposed for the 24-Hour TSP monitoring and was commenced on 13 July 2021 upon agreed by ER and IEC.
- 4.1.2 In the Reporting Period, 1-Hour TSP monitoring was performed at designated monitoring location AM2 and interim alternative monitoring locations AM4, and 24-Hr TSP of air quality monitoring was performed at interim alternative monitoring locations AM2a and AM5. The air quality monitoring schedule is presented in *Appendix F*.
- 4.1.3 Valid calibration certificates of monitoring equipment are shown in *Appendix G* and the monitoring results are summarized in the following sub-sections

#### 4.2 **RESULTS OF AIR QUALITY MONITORING IN THE REPORTING MONTH**

4.2.1 During the Reporting Period, 36 sessions of 1-hour TSP and 9 sessions of 24-hours TSP monitoring were carried out and the monitoring results are summarized in *Table 4-1* and *Table 4-2*. The detailed 24-hour TSP monitoring data are presented in *Appendix H* and the relevant graphical plots are shown in *Appendix I*.

Table 4-11-Hour TSP Air Quality Impact Monitoring Results for AM4 and 24-Hour<br/>TSP Air Quality Impact Monitoring Results for AM5

AI	M5	AM4				
24-Hr TSP (µg/m <sup>3</sup> )		1-Hour TSP (μg/m <sup>3</sup> )				
Date	Meas. Result	Date	Start Time	1 <sup>st</sup> Meas.	2 <sup>nd</sup> Meas.	3 <sup>rd</sup> Meas.
6-Oct-21	154	2-Oct-21	9:30	84	81	80
12-Oct-21	155	8-Oct-21	9:23	78	86	82
18-Oct-21	38	15-Oct-21*	9:24	84	93	86
23-Oct-21	107	19-Oct-21	13:02	78	74	64
29-Oct-21	174	25-Oct-21	9:51	63	67	64
		30-Oct-21	13:14	71	67	75
Average (Range)	126 (38 - 174)	Average (Range)			77 (63 – 93)	

\* 1-Hour TSP monitoring on 13 October 2021 was cancelled due to adverse weather condition (Typhoon Signal No.8 inforce) and rescheduled to 15 October 2021.

Table 4-21-Hour TSP Air Quality Impact Monitoring Results for AM2

AM2a		AM2				
24-Hr TSP (μg/m <sup>3</sup> )		1-Hour TSP (µg/m <sup>3</sup> )				
Date	Meas. Result	Date	Start Time	1 <sup>st</sup> Meas.	2 <sup>nd</sup> Meas.	3 <sup>rd</sup> Meas.
6-Oct-21	78	2-Oct-21	9:45	83	85	82
12-Oct-21	78	8-Oct-21	9:50	79	76	83
18-Oct-21#		15-Oct-21*	9:11	81	75	91
25-Oct-21#	69	19-Oct-21	13:14	77	63	84
29-Oct-21	81	25-Oct-21	9:23	68	72	69
		30-Oct-21	9:16	69	76	72
Average (Range)	77 (69 - 81)	Average (Range)			77 (63 – 91)	

\* 1-Hour TSP monitoring on 13 October 2021 was cancelled due to adverse weather condition (Typhoon Signal No.8 inforce) and rescheduled to 15 October 2021.

# 24-Hour TSP monitoring at AM2a on 18 and 23 October 2021 were failure due to power supply issue. The 24-Hour TSP monitoring at AM2a were resumed on 25 October 2021.



- 4.2.2 As shown in *Table 4-1* and *Table 4-2*, all the 1-hour TSP and 24-hour TSP monitoring results were below the Action / Limit Levels. No Notification of Exceedance (NOE) was issued in this Reporting Period.
- 4.2.3 The meteorological data during impact monitoring period is summarized in *Appendix J*.



## 5. CONSTRUCTION NOISE MONITORING

## 5.1 GENERAL

- 5.1.1 In the Reporting Period, construction noise quality monitoring was performed at designated monitoring location **CNMS-1 & CNMS-2**, and interim alternative monitoring location **CNMS-5**. The construction noise monitoring schedule is presented in *Appendix F*.
- 5.1.2 Valid calibration certificates of monitoring equipment is shown in *Appendix G* and the construction noise monitoring results are summarized in the following sub-sections:

#### 5.2 **RESULTS OF NOISE MONITORING**

5.2.1 12 sessions of daytime construction noise monitoring were performed at both the designated monitoring location CNMS-1 & CNMS-2 and the interim alternative location CNMS-5 in the reporting period. The daytime noise monitoring results are summarized in *Table 5-1* to *Table 5-3*. The detailed noise monitoring data are presented in *Appendix H* and the relevant graphical plots are shown in *Appendix I*.

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

Date	Time	Measurement Result (dB(A))		
	Time	Leq30min	Façade Correction	
8-Oct-21	9:12	66.6	NA	
15-Oct-21*	9:24	69.1	NA	
19-Oct-21	13:07	71.2	NA	
25-Oct-21	10:49	62.6	NA	

\* Noise monitoring on 13 October 2021 was cancelled due to adverse weather condition (Typhoon Signal No.8 inforce) and rescheduled to 15 October 2021.

	e Correction
8-Oct-21 9:51 68.7	NA
15-Oct-21* 10:13 68.0	NA
19-Oct-21 13:47 67.5	NA
25-Oct-21 11:32 57.0	NA

\* Noise monitoring on 13 October 2021 was cancelled due to adverse weather condition (Typhoon Signal No.8 inforce) and rescheduled to 15 October 2021.

Table 5-3 I	Daytime Construction	Noise Impact Monitor	ring Results at CNMS-5
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Date Time		Measurement Result (dB(A))		
Date	Ime	Leq30min	Façade Correction	
8-Oct-21	10:37	68.0	NA	
15-Oct-21*	11:59	66.8	NA	
19-Oct-21	14:31	65.8	NA	
25-Oct-21	9:59	64.3	NA	

\* Noise monitoring on 13 October 2021 was cancelled due to adverse weather condition (Typhoon Signal No.8 inforce) and rescheduled to 15 October 2021.

5.2.2 As shown in *Table 5-1* to *Table 5-3*, all the measured results were below 75dB(A) of the acceptance criteria. No adverse weather condition which may affect the monitoring result was encountered during the course of noise monitoring in the reporting period.



# 6. WATER QUALITY MONITORING

## 6.1 GENERAL

- 6.1.1 According to the approved EM&A Manual Section 7.6.1, the impact marine water quality monitoring work shall be carried out during the CBL piling and pile excavation works (marine construction activity) of the Project. Impact marine water quality monitoring was commenced in December 2018 when CBL piling and pile excavation works started.
- 6.1.2 As confirmed, all the marine piling and piling excavation work were completed in January 2020 and all pile cap installation work was completed in mid-March 2020. Due to the marine construction works that requires marine water quality monitoring as stated in the EM&A Manual were completed, the impact water quality monitoring was ceased with effect from 1 May 2020 and IEC has no particular comment on this arrangement.
- 6.1.3 No impact water quality monitoring was therefore carried out in the reporting period.



## 7. WASTE MANAGEMENT

#### 7.1 GENERAL WASTE MANAGEMENT

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

## 7.2 **RECORDS OF WASTE QUANTITIES**

- 7.2.1 All types of waste arising from the construction work are classified into the following:
  - Construction & Demolition (C&D) Material;
  - Chemical Waste; and
  - General Refuse
- 7.2.2 According to the information provided by Contractor of Contract 1 and Contract 2, waste disposal was made in the Reporting period are summarized in *Tables 7-1* and *7-2*.

	Contract 1		Contract 2	
Type of Waste	Quantity	Disposal Location	Quantity	Disposal Location
Total C&D Materials (Inert) ('000m <sup>3</sup> )	0.036	-	0.256	-
Reused in this Contract (Inert) ('000m <sup>3</sup> )	0	-	0	-
Reused in other Projects (Inert) ('000m <sup>3</sup> )	0	-	0	-
Disposal as Public Fill (Inert) ('000m <sup>3</sup> )	0.036	TKO 137	0.256	TKO 137
Imported Fill ('000m <sup>3</sup> )	0	-	0	-

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

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

	Cont	ract 1	Contract 2	
Type of Waste	Quantity	Disposal Location	Quantity	Disposal Location
Recycled Metal ('000kg)	0	-	0	-
Recycled Paper / Cardboard Packing ('000kg)	0.151	Collected by paper recycling company	0	-
Recycled Plastic ('000kg)	0	-	0	-
Chemical Wastes ('000kg)	0	-	0	-
General Refuses ('000m <sup>3</sup> )	0.211	NENT	0.023	NENT

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

## 8. SITE INSPECTION

#### 8.1 **REQUIREMENTS**

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

#### 8.2 FINDINGS / DEFICIENCIES DURING THE REPORTING MONTH Contract 1

- 8.2.1 In this Reporting Month, weekly joint site inspection to evaluate site environmental performance for the *Contract 1* was carried out by the Project Consultant, ET and the Contractor on 6, 15, 22 & 27 October 2021. Moreover, the Independent Environmental Checker (IEC) monthly site inspection was conducted on 15 October 2021.
- 8.2.2 The findings / deficiencies of *Contract 1* that observed during the weekly site inspection are listed in *Table 8-1* and the site layout plan was provided in Appendix A.

Date	Findings / Deficiencies	Follow-Up Status
6 October 2021	<ul> <li><u>Observation:</u></li> <li>Drip tray should be provided for chemical storage on-site. (Portion V)</li> </ul>	Chemical storage on-site was removed.
15 October 2021	• No adverse environmental issue was observed.	• NA
22 October 2021	<u>Observation:</u> • General refuse cumulated on-site should be cleaned regularly. (Portion V)	• General refuse was removed.
27 October 2021	<ul> <li><u>Observation:</u></li> <li>Waste skip was observed full. General refuse cumulated on-site should be cleaned more frequency. (Works Area A)</li> </ul>	• General waste in the waste skip was removed.

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

## Contract 2

- 8.2.3 In this Reporting Month, weekly joint site inspection to evaluate site environmental performance for the *Contract 2* were carried out by the Project Consultant, ET and the Contractor on 6, 15, 22 & 27 October 2021. Moreover, the Independent Environmental Checker (IEC) monthly site inspection was conducted on 15 October 2021.
- 8.2.4 The findings / deficiencies of *Contract 2* that observed during the weekly site inspection are listed in *Table 8-2* and the site layout plan was provided in **Appendix A**.

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

Date	Findings / Deficiencies	Follow-Up Status
6 October 2021	<ul> <li><u>Observation:</u></li> <li>Proper dust mitigation measures should be provded for stockpile of loose material storage on-site. (Portion VI)</li> </ul>	• Dusty stockpile has removed
15 October 2021	<ul> <li><u>Observation:</u></li> <li>Broken NRMM label should be replaced. (Portion VI)</li> <li>Stagnant water cumulated inside the drip tray after rainstorm should be cleaned. (Portion III)</li> </ul>	<ul> <li>NRMM Label has replaced</li> <li>Stagnant water has cleared</li> </ul>



Date	Findings / Deficiencies	Follow-Up Status
	NRMM label should be displayed for NRMM using on-site. (Portion III)	NRMM Label has affixed
22 October 2021	• No adverse environmental issue was observed.	NA
27 October 2021	<ul> <li><u>Observation:</u></li> <li>Drip tray should be provided for chemical storage on-site. (Portion VI)</li> </ul>	Chemical has removed

#### 8.3 IMPLEMENTATION STATUS OF SURFACE RUNOFF MITIGATION MEASURES

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

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

8.3.2 The surface runoff mitigation measures of Contract 1 implemented in this Reporting Period are:
Treatment facilities was installed at site to treat the site generated water prior discharge.

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

- 8.3.3 The surface runoff mitigation measures of Contract 2 implemented in this Reporting Period are:
  Treatment facilities was installed at site to treat the site generated water prior discharge.
- 8.3.4 Overall, the surface runoff mitigation measures of Contract 1 and Contract 2 observed during the inspection of the reporting period are efficient.



# 9. LANDFILL GAS MONITORING

#### 9.1 GENERAL REQUIREMENT

- 9.1.1 Pursuant to Section 13 of the Project's EM&A Manual, landfill gas monitoring shall perform during excavation work within the 250m Consultation Zone of Tseung Kwan O Stage II & III Landfill. For landfill gas monitoring requirements, pre entry and routine measurement shall be undertaken in accordance with the *Factories and Industrial Undertaking (Confined Spaces) Regulation.*
- 9.1.2 According to Environmental Mitigation Implementation Schedule (EMIS) S14.7.6, portable monitoring equipment can be used to conduct landfill gas monitoring. Moreover, the frequency and areas to be monitored should be set down prior to commencement of the works either by the Safety Officer or by an appropriately qualified person.

#### 9.2 LIMIT LEVELS AND EVENT AND ACTION PLAN

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

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	
Wiethalle	>20% LEL (i.e.	Stop excavation works	
	>1% by volume)	<ul> <li>Evacuate personnel/prohibit entry</li> </ul>	
		• 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%	
Ovugan	<18%	Stop excavation works	
Oxygen		• Evacuate personnel/prohibit entry	
		<ul> <li>Increase ventilation to restore oxygen to &gt;19%</li> </ul>	

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

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

## 9.3 LANDFILL GAS MONITORING

- 9.3.1 In the Reporting Period, landfill gas monitoring was conducted at the zone Wan O Road which excavation work of Contract 2 was carried out. A Crowcon gas detector was used for the landfill gas monitoring and the valid calibration certificate is presented in **Appendix G**.
- 9.3.2 There were a total of 24 days monitoring were carried by the Safety Officer or an approved and qualified persons. The results of landfill gas measurement are summarized in *Table 9-2*. Moreover, database of monitoring result is attached in Appendix H.



Landfill Gas	Landfill Gas Action Level		Detectable at LMR		
Parameter	Action Level	Limit Level	Min	Max	
Methane	>10% LEL (>0.5% v/v)	>20% LEL (>1% v/v)	0.0%	0.0%	
Oxygen	<19%	<18%	20.6%	20.8%	
Carbon Dioxide	>0.5%	>1.5%	0.0%	0.0%	

Table 9-2Summary of Landfill Gas Measurement Results

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



## 10. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

## **10.1** ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

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

#### Table 10-1 Statistical Summary of Environmental Complaints

Reporting	Controot	Enviro	Related with the		
Period	Contract	Frequency	Cumulative	<b>Complaint Nature</b>	Works Contract(s)
1 – 31 October	1	0	24	NA	NA
2021	2	0	15	NA	NA

#### Table 10-2 Statistical Summary of Environmental Summons

Donorting Doriod	Contract	Environmental Summons Statistics		
Reporting Period	Contract	Frequency	Cumulative	Summons Nature
1 21 October 2021	1	0	0	NA
1 – 31 October 2021	2	0	0	NA

#### Table 10-3 Statistical Summary of Environmental Prosecution

Reporting Period	Contract	Environmental Prosecution Statistics		
		Frequency	Cumulative	<b>Prosecution Nature</b>
1 – 31 October 2021	1	0	0	NA
	2	0	0	NA



# 11. IMPLEMENTATION STATUS OF MITIGATION MEASURES

## **11.1 GENERAL REQUIREMENTS**

- 11.1.1 The environmental mitigation measures that recommended in the Implementation Schedule for Environmental Mitigation Measures (ISEMM) in the approved EM&A Manual covered the issues of dust, noise, water and waste and they are summarized presented in *Appendix M*.
- 11.1.2 The Contractors had been implementing the required environmental mitigation measures according to the Environmental Monitoring and Audit Manual subject to the site condition. Environmental mitigation measures generally implemented by the Contractors in this Reporting Month are summarized in *Table 11-1* and photo record of water mitigation measure was provided in Appendix L.

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;
	<ul><li>Provided quiet powered mechanical equipment to use onsite;</li><li>Weekly noise monitoring was conducted to ensure construction noise meet the</li></ul>
	• 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	<ul> <li>Scrap metals or abandoned equipment should be recycled if possible;</li> </ul>
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.
Uchiciai	<ul> <li>Mosquito control is performed to prevent mosquito breeding on site.</li> </ul>

 Table 11-1
 Environmental Mitigation Measures in the Reporting Month

## **11.2** TENTATIVE CONSTRUCTION ACTIVITIES IN THE COMING MONTH

11.2.1 Tentative construction activities to be undertaken in **November 2021** should be included:-

## Contract 1

- Fabrication of precast shell and precast segment, Pre-drilling, Bored piling, Pile cap construction and Pier construction at portion 1
- Construction of cast in-situ diaphragm, Top Tension and Transverse Tension, Bottom Tension and External Tension and Welding of joint between main span and side span at Portion II, III IV and VI.



- E&M installation work and external work at Portion V
- Bored pilling, pile cap construction, Pier construction and erection for bridge segment at Portion I

#### Contract 2

- Type 2 Wave wall construction at Portion I
- RC construction for U-trough at Portion I & III
- RC construction for column, wall and deck at Elevated Deck
- Drainage work at Portion I, III
- Deck construction at cycle track ramp
- TCSS CrosMonitoring and Instrumentation works
- RC construction for lift shaft and stair case
- Modification of Type 1 Wave wall
- RC Construction of foundation at Wan O Road
- Utilities installation along At Grad Road
- SENB installation at At-Grade Road
- s road ducts installation at Wan Po Road

#### **11.3 IMPACT FORECAST**

- 11.3.1 Potential environmental impacts arising from the works of the Contracts 1 and Contract 2 include:
  - Construction waste
  - Air quality
  - Construction noise
  - Water quality
- 11.3.2 Environmental mitigation measures shall be properly implemented and maintained as per the Mitigation Implementation Schedule in Appendix M to ensure site environmental performance is acceptable.



## 12. CONCLUSIONS AND RECOMMENDATIONS

- 12.1 CONCLUSIONS
- 12.1.1 This is the monthly EM&A report as presented the monitoring results and inspection findings for the reporting period from *1* to *31 October 2021*.
- 12.1.2 In this Reporting Period, no 1-Hour TSP or 24-Hr TSP air quality monitoring and no noise exceedance was recorded. No NOE or the associated corrective actions were therefore issued.
- 12.1.3 In the Reporting Period, no environmental complaint was recorded for the Project with respect to the noise arising from the Project.

#### 12.2 **RECOMMENDATIONS**

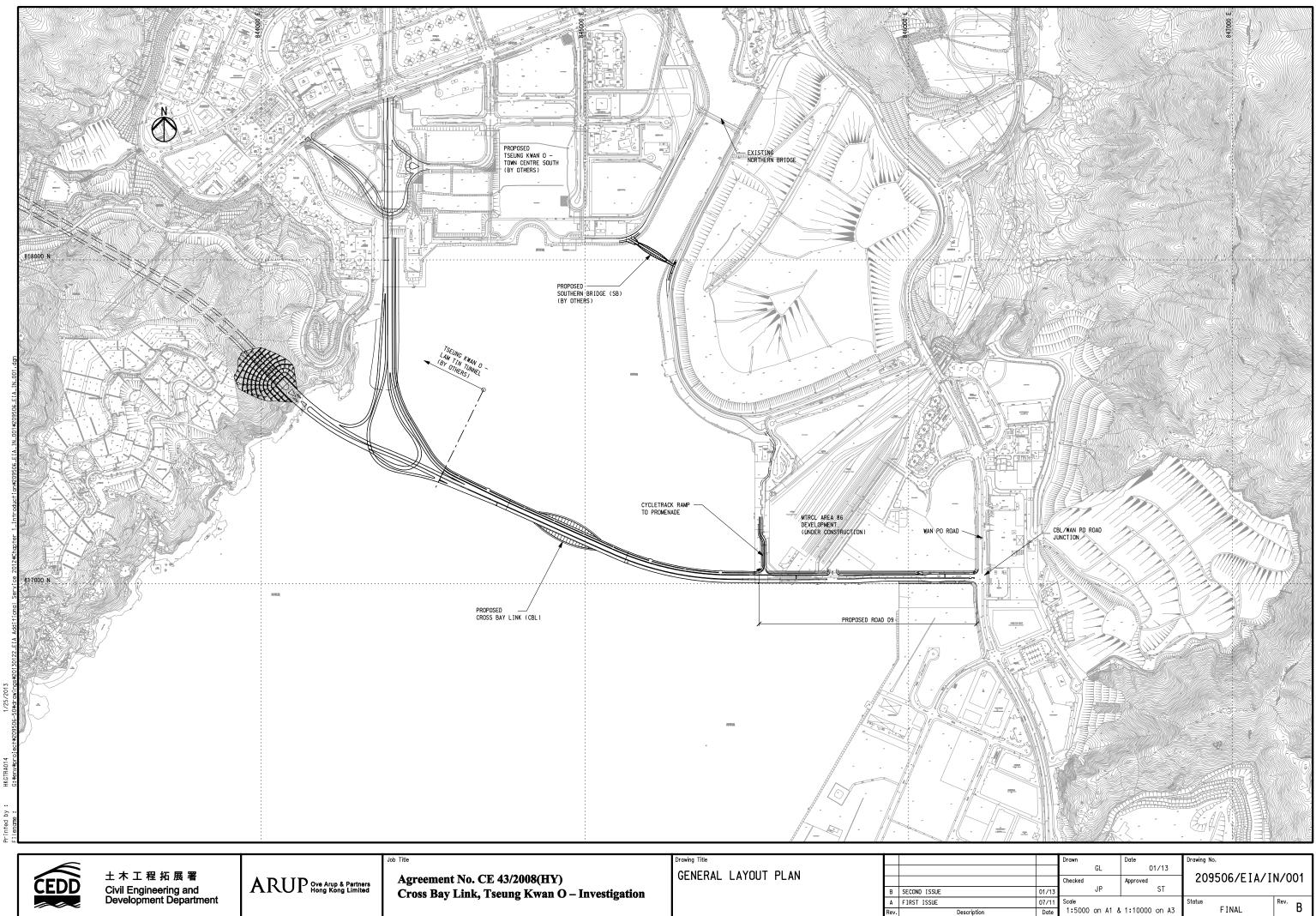
- 12.2.1 Due to the coming month is dry and windy season for Hong Kong, the Contractor was reminded that all the works to undertaking must be fulfill environmental statutory requirement, especially construction dust come from working sites of the Project.
- 12.2.2 Construction noise would be the key environmental issue as Lohas Park Phase 4 & 6 were already available for resident occupation. The noise mitigation measures such as use of quiet plants and installation of temporary noise barrier at the construction noise predominate area should be fully implemented in accordance with the EM&A requirement.



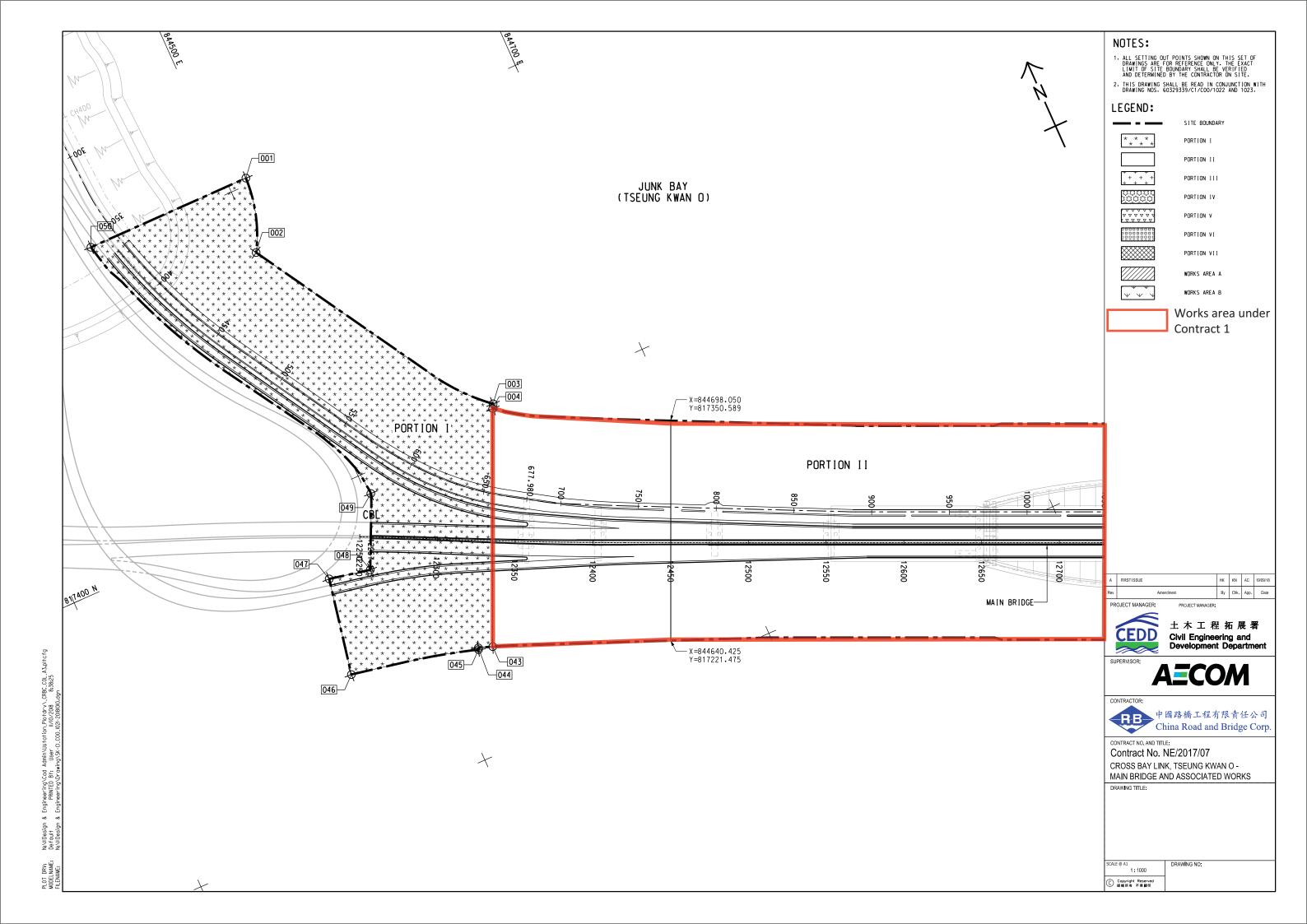
Appendix A

**Project Layout Plan** 

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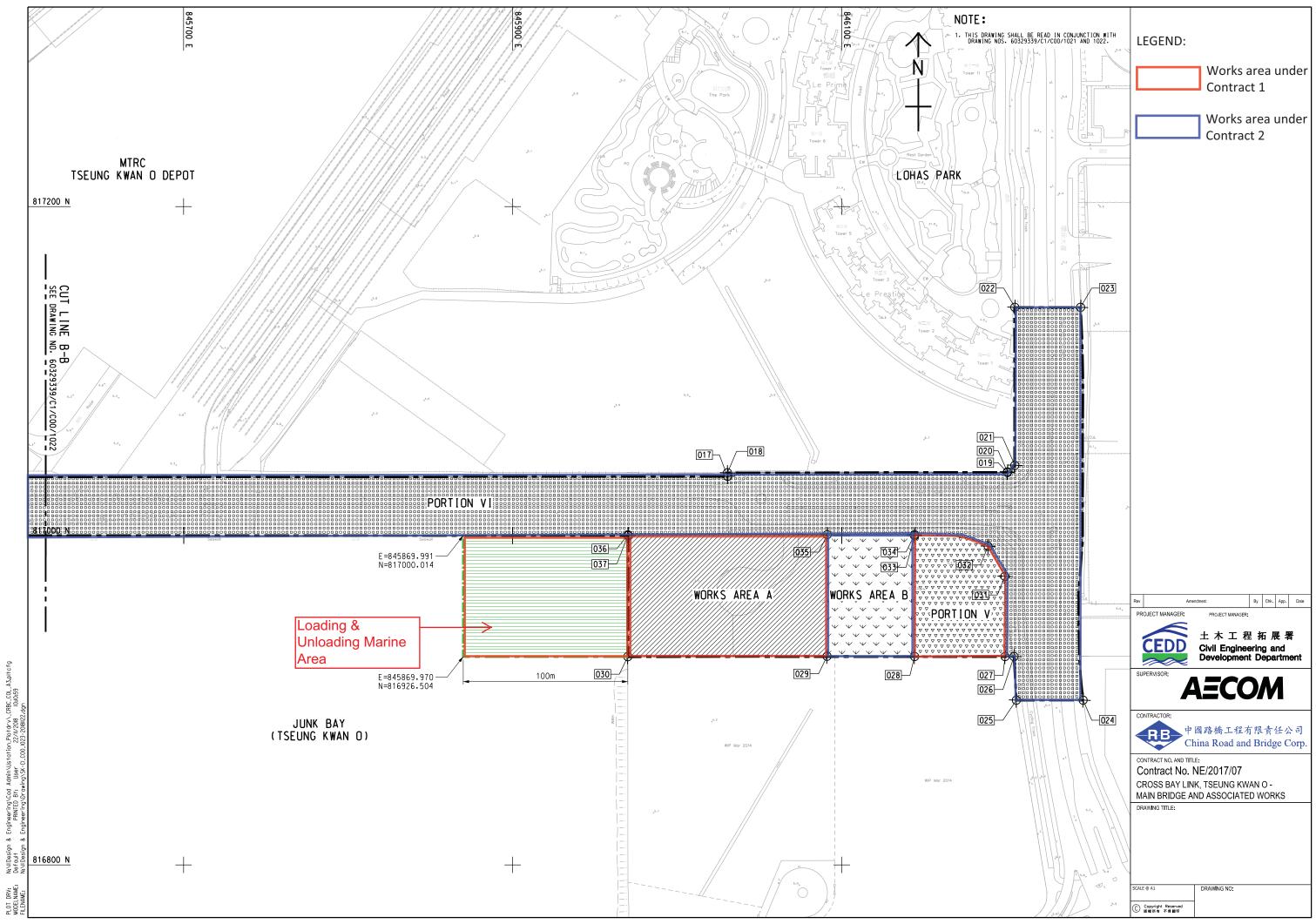


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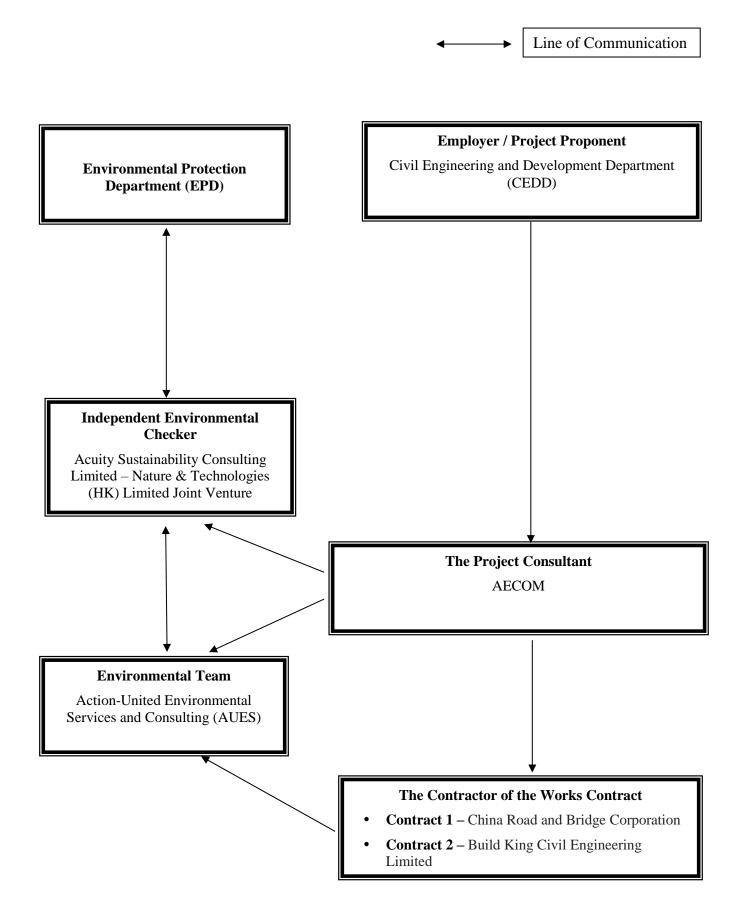


# Appendix B

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



#### **Project Organization Structure**





Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
CEDD	Project Proponent	CK Lam	2301 1398	2714 5174
CEDD	Project Proponent	Sheri Leung	2301 1398	2714 5174
AECOM	Senior Resident Engineer	Jackie Chan	3595 8045	3596 6118
AECOM	Resident Engineer	Kingman Chan	3595 8045	3596 6118
ASC – N&T JV	Independent Environmental Checker	Kevin Li	2698 6833	2698 9383
ASC – N&T JV	Senior Environmental Consultant	Tandy Tse	2698 6833	2698 9383
AUES	Environmental Team Leader	T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Ben Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Martin Li	2959 6059	2959 6079
CRBC	Site Agent	Raymond Suen	9779 8871	2283 1689
CRBC	Environmental Officer	Calvin So	9724 6254	2283 1689
CRBC	Environmental Supervisor	Alice Ngai	9148 5688	2283 1689
Build King	Site Agent	Stephen Leung	9071 7657	TBA
Build King	Environmental Officer	Michael Lam	6476 4299	TBA
Build King	Environmental Supervisor	Kenneth Hung	6170 9304	TBA

#### **Contact Details of Key Personnel for the Project**

#### Legend:

CEDD (Employer) – Civil Engineering and Development Department

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

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

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

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

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



# Appendix C

# **3-Month Rolling Construction Programme**



**Contract 1** 

Data Date :08-Oct-21 Sheet 1of 7

Activity I	heet lof 7	ActivlyName	Original Duration	Remaining Durator	n Start	Finish	Physical % Complete	26 03	October 2021 10 17 24	November 2021 31 07 14 21
_(	the second s	eung Kwan O Main Bridge and Associated Works	604	237	24-Apr-20 A	01-Jun-22				
	Access Date PAD1110	Access to Portion VI	0	0	08-Oct-21 08-Oct-21*	08-Oct-21	0%		Access Date     Access to Portion VI	
			149	70	24-Apr-20 A	16-Dec-21	078			
	· · · · ·	ntractor's Design & Method Statement Submission & Approval ign Submission and Approval	149	70	24-Apr-20 A	16-Dec-21				
	CDS1140	Design of Functional lighting system, road lighting system, etc (incl. 7 days TRA)	97	10	24-Apr-20 A	17-Oct-21	92%		Design of Functional light	ng system,road lighting system,etc (incl. 7 days TR
	CDS1230	Design of cycle rack (incl. 14 days TRA)	111	70	12-Jun-21 A	16-Dec-21	55%			
	Precasting & Fabri	rication Works	186	141	24-Aug-21 A	25-Feb-22				
		ecast Segments (TKOI Entrustment Works)	180	135	24-Aug-21 A	19-Feb-22				-
	Pre-stressing Wor Pre-stressing Wo	rks orks for Bridge ML	83	83 38	02-Nov-21 02-Nov-21	23-Jan-22 09-Dec-21				• •
	P-PF5000	Linking and stressing for 1L-N - W5 (Linking yard No.2)	21	21	02-Nov-21	22-Nov-21	0%			Lini
	P-PF5020	Linking and stressing for 1K-N - 1L-N (Linking yard No.2)	15	15	25-Nov-21	09-Dec-21	0%			•
	P-PF5040	Linking and stressing for 1L-S - W5 (Linking yard No.1)	21	21	04-Nov-21	24-Nov-21	0%			
	P-PF5060	Linking and stressing for 1K-S - 1L-S (Linking yard No.1)	15	15	25-Nov-21	09-Dec-21	0%			•
		orks for Bridge S400	45	45	10-Dec-21	23-Jan-22				
	P-PF6040	Linking and stressing for 5H-W5 (Linking yard No.2)	15	15	10-Dec-21	24-Dec-21	0%			
	P-PF6060	Linking and stressing for 5A-5B (Linking yard No.2)	15	15	09-Jan-22	23-Jan-22	0%			
	P-PF6100	Linking and stressing for 5C-5D (Linking yard No.3)	15	15	10-Dec-21	24-Dec-21	0%			
	P-PF6120	Linking and stressing for 5D-5E (Linking yard No.3)	15	15	09-Jan-22	23-Jan-22	0%			
	Pre-stressing Wo P-PF7040	orks for Bridge CT Linking and stressing for 9C-9D (Linking yard No.2)	45	45 15	25-Nov-21 25-Dec-21	08-Jan-22 08-Jan-22	0%			۲
	P-PF7100	Linking and stressing for 9H-W5 (Linking yard No.3)	15	15	25-Nov-21*	09-Dec-21	0%			
	P-PF7120	Linking and stressing for 9B-9C (Linking yard No.3)	15	15	25-Dec-21	08-Jan-22	0%			
	Pre-stressing Wo P-PF8000	brks for Bridge S200 Linking and stressing for 2L-W5 (Linking yard No.1)	15	15 15	06-Jan-22 06-Jan-22	20-Jan-22 20-Jan-22	0%			
	Fabrication Works	s	180	135	24-Aug-21 A	19-Feb-22				
	Precast Segment		93	45	24-Aug-21 A	21-Nov-21	1000(	Echrication of comment (		Precas
	P-PF1010	Fabrication of segment for Pier Pier 1L-N (1LND1, 1LNDU0,1LNU1) (3nos) (Line No.1)	36	0	24-Aug-21 A	24-Sep-21 A		Pablication of segment f	er Pier Pier 1L-N (1LND1, 1LNDU0,1LNU1) (	
	P-PF1020	Fabrication of segment for Pier 1L-S (1LSD1, 1LSDU0,1LSU1) (3nos) (Line No.1)	36	8	09-Sep-21 A	15-Oct-21	80%		Fabrication of segment for Pie	r:1L-S (1LSD1, 1LSDU0,1LSU1) (3nos) (Line No
	P-PF1040	Fabrication of segment for 1K-S - 1L-S (1KSU1-15) (15nos) (Line No.1)	30	30	16-Oct-21	14-Nov-21	0%			Fabrication of segme
	P-PF1060	Fabrication of segment for 1L-S - W5 (1LSU2-15) (14nos) (Line No.2)	42	17	10-Sep-21 A	24-Oct-21	57.1%		Fabrication	of segment for 1L-S - W5 (1LSU2-15) (14nos) (Li
	P-PF1080	Fabrication of segment for 1K-N - 1L-N (IKNU1-15) (15nos) (Line No.3)	45	45	23-Sep-21 A	21-Nov-21	13.3%			Fabric
	P-PF1100	Fabrication of segment for 1L-N - W5 (1LNU2-15) (14nos) (Line No.4)	42	15	02-Sep-21 A	22-Oct-21	66.7%			gment for 1L-N - W5 (1LNU2-15) (14nos) (Line
	P-PF1120	Fabrication of segment for Pier 1K and W5 (1KSU0, 1KNU0, 1MSD0, 1MND0) (4nos) (Line No.5)	48	24	01-Sep-21 A	31-Oct-21	35%			<sup>1</sup> Fabrication of segment for Pier 1K and W5 (1KS
	Precast Segment P-PF2080	ts for Bridge S400 Fabrication of segment for 5A-5B (5AU1-12) (12nos) (Line No.1)	95 24	110 24	29-Sep-21 A 15-Nov-21	25-Jan-22 08-Dec-21	0%			
	P-PF2100	Fabrication of segment for 5G - 5H (5GDU0, 5GU1-12) (12108) (Line No.1)	48	48	09-Dec-21	25-Jan-22	0%			
		• • • • • • • • •								
	P-PF2120	Fabrication of segment for 5F - 5G (5FDU0, 5FU1-13) (14nos) (Line No.2)	38	38	14-Dec-21	20-Jan-22	0%			
	P-PF2140	Fabrication of segment for 5B-5C (5BDU0, 5BU1-13) (14nos) (Line No.4)	45	45	23-Oct-21	06-Dec-21	0%			F.L., 6
	P-PF2160	Fabrication of segment for Pier W5 (5JD0) (Ino) (Line No.5)	10	10	01-Nov-21	10-Nov-21	0%			Fabrication of segment for P
	P-PF2180	Fabrication of segment for Pier 5A (5AU0) (Ino) (Line No.5)	10	10	21-Nov-21	30-Nov-21	0%			
	P-PF2200	Fabrication of segment for Pier 5E (5ED0, 5EU0) (2nos) (Line No.5)	20	20	21-Dec-21	09-Jan-22	0%			
	P-PF2220	Fabrication of segment for 5C-5D (5DDU0, 5CDU0, 5CU1-13) (15nos) (Line No.6)	59	57	29-Sep-21 A	03-Dec-21	5%			
	Precast Segment P-PF3100	ts for Bridge CT Fabrication of segment for 9C-9D (9DDU0, 9CDU0, 9CU1-12) (14nos) (Line No.2)	115 50	115 50	25-Oct-21 25-Oct-21	16-Feb-22 13-Dec-21	0%			
	P-PF3120	Fabrication of segment for 9B-9C (9BDU0, 9BU1-12) (13nos) (Line No.3)	26	26	22-Nov-21	17-Dec-21	0%			
	P-PF3140	Fabrication of segment for 9F-9G (9FDU0, 9FU1-12) (13Ros) (Line No.3)	61	61	18-Dec-21	16-Feb-22	0%			
	P-PF3160	Fabrication of segment for 9A-9B & Pier 9G (9GDU0, 9AU1-12) (13nos) (Line No.4)	36	36	13-Dec-21	17-Jan-22	0%			Fabricati
	P-PF3200	Fabrication of segment for Pier W5 (9JD0) (1no) (Line No.5)	10	10	11-Nov-21	20-Nov-21	0%			rabicau
	P-PF3220	Fabrication of segment for Pier 9A (9AU0) (1no) (Line No.5)	10	10	01-Dec-21	10-Dec-21	0%			
	P-PF3240	Fabrication of segment for Pier 9E (9ED0, 9EU0) (2nos) (Line No.5)	20	20	10-Jan-22	29-Jan-22	0%			
	Precast Segment	ts for Bridge S200	78	78	04-Dec-21	19-Feb-22				1
_	Romainir	ng Level of Effort Critical Remaining Work								Date
	Actual We			The	aa Manth I	Colling Du	aram	na (Natahan )	021 - January 2022)	08-Oct-21
	Remainir			1 111		soming i fo	ogi allill		021 - January 2022)	
		· · · · · · · · · · · · · · · · · · ·								

Design of cycle rack (incl. 14 days TRA)     Pre-stressing Works for Bridge ML Linking and stressing for IL-N - W5 (Linking yard No.2)     Linking and stressing for IL-S - W5 (Linking yard No.1)     Linking and stressing for IK-S - 1L-S (Linking yard No.1)     Linking and stressing for IK-S - 1L-S (Linking yard No.1)     Linking and stressing for 9H-W5 (Linking yard No.3)     Linking and stressing for 9H-W5 (Linking yard No.3)     Linking and stressing for Bridge ML e No.1) grament for IK-S - 1L-S (IKSUI-15) (15nos) (Line No.1) (Line No.2) brication of segment for IK-N - 1L-N (1KNUI-15) (15nos) (Line No.3) ine No.4) IKSU0, 1KNU0, 1MSD0, 1MND0) (4nos) (Line No.5)	
Contractor's Design Submission and Approva TRA) Design of cycle rack (incl. 14 days TRA) Pre-stressing Works for Bridge ML Linking and stressing for 1L-N - W5 (Linking yard No.2) Linking and stressing for 1L-S - W5 (Linking yard No.1) Linking and stressing for 1K-S - 1L-S (Linking yard No.1) Linking and stressing for 5L- Linking and stressing for 5L- Linking and stressing for 9H-W5 (Linking yard No.3) Linking and stressing for Bridge ML tecast Segments for Bridge ML te No.1) Tereast Segment for 1K-N - 1L-N (1KNU1-15) (15nos) (Line No.3) Design of cycle rack (incl. 14 days TRA)	
Contractor's Design Submission and Approva TRA) Design of cycle rack (incl. 14 days TRA) Pre-stressing Works for Bridge ML Linking and stressing for 1L-N - W5 (Linking yard No.2) Linking and stressing for 1L-S - W5 (Linking yard No.1) Linking and stressing for 1K-S - 1L-S (Linking yard No.1) Linking and stressing for 5L- Linking and stressing for 5L- Linking and stressing for 9H-W5 (Linking yard No.3) Linking and stressing for Bridge ML tecast Segments for Bridge ML te No.1) Tereast Segment for 1K-N - 1L-N (1KNU1-15) (15nos) (Line No.3) Design of cycle rack (incl. 14 days TRA)	
Contractor's Design Submission and Approva TRA) Design of cycle rack (incl. 14 days TRA) Pre-stressing Works for Bridge ML Linking and stressing for 1L-N - W5 (Linking yard No.2) Linking and stressing for 1L-S - W5 (Linking yard No.1) Linking and stressing for 1K-S - 1L-S (Linking yard No.1) Linking and stressing for 5L- Linking and stressing for 5L- Linking and stressing for 9H-W5 (Linking yard No.3) Ceast Segments for Bridge ML e No.1) grament for 1K-S - 1L-S (1KSU1-15) (15nos) (Line No.1) (Line No.2) brication of segment for 1K-N - 1L-N (1KNU1-15) (15nos) (Line No.3) ine No.4) IKSU0, 1KNU0, 1MSD0, 1MND0) (4nos) (Line No.5)	
Design of cycle rack (incl. 14 days TRA)  Pre-stressing Works for Bridge ML Linking and stressing for IL-N - W5 (Linking yard No.2)  Linking and stressing for IL-S - W5 (Linking yard No.1)  Linking and stressing for IK-S - 1L-S (Linking yard No.1)  Linking and stressing for SI- Linking and stressing for 9H-W5 (Linking yard No.3)  recast Segments for Bridge ML e No.1)  recast Segment for IK-S - 1L-S (IKSUI-15) (15nos) (Line No.1) (Line No.2) abrication of segment for IK-N - 1L-N (1KNUI-15) (15nos) (Line No.3) ine No.4) IKSU0, IKNU0, IMSD0, IMND0) (4nos) (Line No.5)	
Pre-stressing Works for Bridge ML Linking and stressing for 1L-N - W5 (Linking yard No.2) Linking and stressing for 1K-N - 1L-N (Linking yard No.2) Linking and stressing for 1K-S - 1L-S (Linking yard No.1) Linking and stressing for 1K-S - 1L-S (Linking yard No.1) Linking and stressing for 5H Linking and stressing for 9H-W5 (Linking yard No.3) Linking and stressing for 9H-W5 (Linking yard No.3) recast Segments for Bridge ML e No.1) gment for 1K-S - 1L-S (IKSU1-15) (15nos) (Line No.1) (Line No.2) ubrication of segment for 1K-N - 1L-N (1KNU1-15) (15nos) (Line No.3) ine No.4) IKSU0, 1KNU0, 1MSD0, 1MND0) (4nos) (Line No.5)	
Linking and stressing for 1L-N - W5 (Linking yard No.2) Linking and stressing for 1L-S - W5 (Linking yard No.1) Linking and stressing for 1L-S - W5 (Linking yard No.1) Linking and stressing for 1K-S - 1L-S (Linking yard No.1) Linking and stressing for 5H Linking and stressing for 9H-W5 (Linking yard No.3) Linking and stressing for 9H-W5 (Linking yard No.3) Linking and stressing for 9H-W5 (Linking yard No.3) recast Segments for Bridge ML e No.1) Cline No.2) Linking and stressing (Line No.1) (Line No.2) Linking and stressing (Line No.5) Linking (Line No.5)	
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Linking and stressing for 1K-N - 1L-N (Linking yard No.2) Linking and stressing for 1L-S - W5 (Linking yard No.1) Linking and stressing for 1K-S - 1L-S (Linking yard No.1) Linking and stressing for 5H Linking and stressing for 9H-W5 (Linking yard No.3) Linking and stressing for 9H-W5 (Linking yard No.3) Linking and stressing for 9H-W5 (Linking yard No.3) recast Segments for Bridge ML e No.1) rement for 1K-S - 1L-S (1KSU1-15) (15nos) (Line No.1) (Line No.2) abrication of segment for 1K-N - 1L-N (1KNU1-15) (15nos) (Line No.3) ine No.4) 1KSU0, 1KNU0, 1MSD0, 1MND0) (4nos) (Line No.5)	
<ul> <li>Linking and stressing for IL-S - W5 (Linking yard No.1)</li> <li>Linking and stressing for IK-S - IL-S (Linking yard No.1)</li> <li>Linking and stressing for 5H</li> <li>Linking and stressing for 5C</li> <li>Linking and stressing for 9H-W5 (Linking yard No.3)</li> <li>Linking and stressing for 9H-W5 (Linking yard No.3)</li> </ul>	
Linking and stressing for 5H- Linking and stressing for 9H-W5 (Linking and No.3) Linking and stressing for 9H-W5 (Linking and No.3) Linking and stressing for 9H-W5 (Linking and No.3) recast Segments for Bridge ML e No.1) segment for IK-S - IL-S (IKSUI-15) (15nos) (Line No.1) (Line No.2) abrication of segment for IK-N - IL-N (IKNUI-15) (15nos) (Line No.3) ine No.4) IKSU0, IKNU0, IMSD0, IMND0) (4nos) (Line No.5)	
Linking and stressing for 5C- Linking and stressing for 9H-W5 (Linking yard No.3) Linking and stressing for 9H-W5 (Linking yard No.3) recast Segments for Bridge ML e No.1) segment for IK-8 - IL-S (IKSUI-15) (15nos) (Line No.1) (Line No.2) abrication of segment for IK-N - IL-N (IKNUI-15) (15nos) (Line No.3) ine No.4) IKSU0, IKNU0, IMSD0, IMND0) (4nos) (Line No.5)	
Linking and stressing for 9H-W5 (Linking yard No.3) recast Segments for Bridge ML e No.1) segment for IK-S - IL-S (IKSUI-15) (15nos) (Line No.1) (Line No.2) abrication of segment for IK-N - IL-N (IKNU1-15) (15nos) (Line No.3) ine No.4) IKSU0, IKNU0, IMSD0, 1MND0) (4nos) (Line No.5)	W5
Linking and stressing for 9H-W5 (Linking yard No.3) recast Segments for Bridge ML e No.1) segment for IK-S - IL-S (IKSUI-15) (15nos) (Line No.1) (Line No.2) abrication of segment for IK-N - IL-N (IKNU1-15) (15nos) (Line No.3) ine No.4) IKSU0, IKNU0, IMSD0, 1MND0) (4nos) (Line No.5)	_
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recast Segments for Bridge ML e No.1) sgment for 1K-\$ - 1L-S (1KSUI-15) (15nos) (Line No.1) (Line No.2) abrication of segment for 1K-N - 1L-N (1KNU1-15) (15nos) (Line No.3) ine No.4) 1KSU0, 1KNU0, 1MSD0, 1MND0) (4nos) (Line No.5)	
recast Segments for Bridge ML e No.1) sgment for 1K-\$ - 1L-S (1KSUI-15) (15nos) (Line No.1) (Line No.2) abrication of segment for 1K-N - 1L-N (1KNU1-15) (15nos) (Line No.3) ine No.4) 1KSU0, 1KNU0, 1MSD0, 1MND0) (4nos) (Line No.5)	Pre Lin
e No.1) gment for IK-\$ - IL-S (IKSUI-15) (15nos) (Line No.1) (Line No.2) abrication of segment for IK-N - IL-N (IKNU1-15) (15nos) (Line No.3) ine No.4) IKSU0, IKNU0, IMSD0, 1MND0) (4nos) (Line No.5)	
e No.1) gment for IK-\$ - IL-S (IKSUI-15) (15nos) (Line No.1) (Line No.2) abrication of segment for IK-N - IL-N (IKNU1-15) (15nos) (Line No.3) ine No.4) IKSU0, IKNU0, IMSD0, 1MND0) (4nos) (Line No.5)	Lin
(Line No.2) abrication of segment for 1K-N - 1L-N (1KNU1-15) (15nos) (Line No.3) .ine No.4) 1KSU0, 1KNU0, 1MSD0, 1MND0) (4nos) (Line No.5)	
ggment for 1K-\$ - 1L-S (1KSU1-15) (15nos) (Line No.1) (Line No.2) abrication of segment for 1K-N - 1L-N (1KNU1-15) (15nos) (Line No.3) ine No.4) 1KSU0, 1KNU0, 1MSD0, 1MND0) (4nos) (Line No.5)	-
ggment for 1K-\$ - 1L-S (1KSU1-15) (15nos) (Line No.1) (Line No.2) abrication of segment for 1K-N - 1L-N (1KNU1-15) (15nos) (Line No.3) ine No.4) 1KSU0, 1KNU0, 1MSD0, 1MND0) (4nos) (Line No.5)	
(Line No.2) abrication of segment for 1K-N - 1L-N (1KNU1-15) (15nos) (Line No.3) .ine No.4) 1KSU0, 1KNU0, 1MSD0, 1MND0) (4nos) (Line No.5)	
.ine No.4) IKSU0, IKNU0, 1MSD0, 1MND0) (4nos) (Line No.5)	
1KSU0, 1KNU0, 1MSD0, 1MND0) (4nos) (Line No.5)	
Fabrication of segment for 5A-5B (5AU1-12) (12nos) (Line N	o.1)
Fabrication of segment for 5B-5C (5BDU0, 5BU1-13) (14nos) (L	ine N
or Pier W5 (5JD0) (Ino) (Line No.5)	
Fabrication of segment for Pier 5A (5AU0) (1no) (Line No.5)	
Fabrication of segment for 5C-5D (5DDU0, 5CDU0, 5CU1-13) (15nos	■ F
rationation of segment for 5C-5D (5DD00, 5CD00, 5CT-15) (15hos	(Lu
Fabrication of segment for 9C-9D (9DDU0, 9CDU	
Fabrication of segment for 9B-9C (9BDU0	ΑRI
	_
rication of segment for Pier W5 (9JD0) (1no) (Line No.5)	
Fabrication of segment for Pier 9A (9AU() (1no) (Line No	5.5)
·	
Revision Checked Approved 3MRP (Oct21 - Jan 22)	

Data Date :08-Oct-21 Sheet 2of 7

Sheet 201 /	ActivityName	Original Duration	Remaining Duration	Start	Finish	Physical % Complete			October	2021		November 2021
P-PF4020	Fabrication of segment for Pier 2L (2LDU0) (1no) (Line No.4)	6	6	07-Dec-21	12-Dec-21	Complete 0%	26	03	10	17 24	31 07	14 21
P-PF4040	Fabrication of segment for Pier 5W (2MD0) (1no) (Line No.5)	10	10	11-Dec-21	20-Dec-21	0%						
P-PF4060	Fabrication of segment for 2L-W5 (2LU1-13) (13nos) (Line No.2)	26	26	04-Dec-21	29-Dec-21	0%						
P-PF4080	Fabrication of segment for 2K-2L (2KDU0, 2KU1-13) (14nos) (Line No.6)	52	52	30-Dec-21	19-Feb-22	0%						
Fabrication of Pr	recast Pier (TKOI Entrustment Works)	165	141	14-Sep-21 A	25-Feb-22							
S1-PP1000	Fabrication of precast pier for Pier 1L (Black Rainstorm on 7 Oct 2021)	47	34	14-Sep-21 A	10-Nov-21	0%					F	brication of precast pier f
S1-PP1001	Fabrication of precast pier for Pier 5H	45	38	21-Sep-21 A	14-Nov-21	0%						Fabrication of prec
S1-PP1002	Fabrication of precast pier for Pier 2L	30	30	28-Oct-21	26-Nov-21	0%				•		
S1-PP1003	Fabrication of precast pier for Pier 5B	30	30	03-Dec-21	01-Jan-22	0%						
S1-PP1004	Fabrication of precast pier for Pier 9B	30	30	12-Dec-21	10-Jan-22	0%						
S1-PP1006	Fabrication of precast pier for Pier 9H	24	24	01-Nov-21	24-Nov-21	0%						
S1-PP1007	Fabrication of precast pier for Pier 5C	24	24	25-Nov-21	18-Dec-21	0%						
S1-PP1008	Fabrication of precast pier for Pier 9C	24	24	19-Dec-21	11-Jan-22	0%						
S1-PP1009	Fabrication of precast pier for Pier 9G	24	24	06-Jan-22	29-Jan-22	0%						
S1-PP1010	Fabrication of precast pier for Pier 5D	24	24	25-Nov-21	18-Dec-21	0%						
S1-PP1011	Fabrication of precast pier for Pier 9D	24	24	21-Dec-21	13-Jan-22	0%						
S1-PP1012	Fabrication of precast pier for Pier 5F	24	24	01-Jan-22	24-Jan-22	0%						
S1-PP1014	Fabrication of precast pier for Pier 5G	24	24	31-Dec-21	23-Jan-22	0%						
S1-PP1015	Fabrication of precast pier for Pier 5E	48	48	10-Nov-21	27-Dec-21	0%					_	
S1-PP1016	Fabrication of precast pier for Pier 9E	48	48	09-Jan-22	25-Feb-22	0%						
Section 1 of the W	Vorks- All Works within Portion I of the Site (Entrusted Works of TKOI Viaduct)	196	144	24-Aug-21 A	28-Feb-22							
	ork (Works Available for Piles 5D,9D,5E, 9E, 5F, 9F, 5H, 9H, 1L, 2L)	137	144	18-Sep-21 A	28-Feb-22						Installation of Preca	st Pile Cap & 1st Pour for
S1-PC1010	acast Pile Cap & 1st Pour for Pile Cap - 1L Insatllation of pilecap and 1st pour for Pier 1L (Bridge ML-3-2) (Black Rainstorm on 7 Oct 2021)	26 26	20 20	18-Sep-21 A 18-Sep-21 A	01-Nov-21 01-Nov-21	30%						p and 1st pour for Pier 11
Installation of Pre	ecast Pier & 2nd Pour for Pile Cap - 1L	29	29	11-Nov-21	09-Dec-21						-	
S1-PP2000	Preparation work and delivery works for Pier 1L	10	10	11-Nov-21	20-Nov-21	0%					-	Prepar
S1-PP3000	Insatllation of precast pier and 2st pour for pile cap 1L	16	16	22-Nov-21	09-Dec-21	0%						_
	n of Bridge Segments for Bridge ML on between Pier 1L-N and Pier W5 - Stage 1-1	25	25	02-Dec-21	26-Dec-21							
Si-EB1070	Preparation work and delivery works for segment between Pier IL-N and Pier W5 (B1-1)	21	21 7	03-Dec-21 03-Dec-21	23-Dec-21 09-Dec-21	0%						
S1-EB5020	Segment erection between Pier 1L-N and Pier W5	1	1	23-Dec-21	23-Dec-21	0%						
Segment Erectio	on between Pier 1L-N and Pier 1K - Stage 1-2	8	8	17-Dec-21	24-Dec-21							
S1-EB1080	Preparation work and delivery works for segment between Pier 1L-N and Pier 1K (B2-1)	7	7	17-Dec-21	23-Dec-21	0%						
S1-EB5040	Segment erection between Pier 1L-N and Pier 1K	1	1	24-Dec-21	24-Dec-21	0%						
Segment Erection S1-EB1090	on between Pier 1L-S and Pier W5 - Stage 1-3 Preparation work and delivery works for segment between Pier 1L-S and Pier W5 (B3-1)	24	24 7	02-Dec-21 02-Dec-21	25-Dec-21 08-Dec-21	0%						
S1-EB5060	Segment erection between Pier IL-S and Pier W5	1	1	25-Dec-21	25-Dec-21	0%						
	on between Pier 1L-S and Pier 1K - Stage 1-4	10	10	17-Dec-21	26-Dec-21							
S1-EB1100	Preparation work and delivery works for segment between Pier 1L-S and Pier 1K (B4-1)	7	7	17-Dec-21	23-Dec-21	0%						
S1-EB5080	Segment erection between Pier 1L-S and Pier 1K	1	1	26-Dec-21	26-Dec-21	0%						
	CSS, Duct and Handover Works	63	63	10-Dec-21	28-Feb-22							
S1-SW1000	Stitching works, laying of TCSS duct and handover to TCSS Contractor for Bridge ML	63	63	10-Dec-21	28-Feb-22	0%						
	ork (Works Available for Piles 5B,9B,5C,9C,5G,9G,2K) rk for Piers 5B, 9B, 5C,9C, 5G,9G	164	133 133	24-Aug-21 A 24-Aug-21 A	17-Feb-22 17-Feb-22							
Installation of Pr	recast Pier & 2nd Pour for Pile Cap	65	65	15-Nov-21	18-Jan-22							
Installation of Pr S1-PP2040	recast Pier & 2nd Pour for Pile Cap - 2L Preparation work and delivery works for Pier 2L	21	21 10	27-Nov-21 27-Nov-21	17-Dec-21 06-Dec-21	0%						
S1-PP3010	Insatllation of precast pier and 2st pour for pile cap 2L	10	10	07-Dec-21	17-Dec-21	0%						
	recast Pier & 2nd Pour for Pile Cap - 5B	10	10	02-Jan-22	11-Jan-22							
S1-PP2060	Preparation work and delivery works for Pier 5B	10	10	02-Jan-22	11-Jan-22	0%						
Installation of Pr S1-PP2140	recast Pier & 2nd Pour for Pile Cap - 5C Preparation work and delivery works for Pier 5C	19 10	19 10	19-Dec-21 19-Dec-21	06-Jan-22 28-Dec-21	0%						
S1-PP3120	Insatllation of precast pier and 2st pour for pile cap 5C	7	7	29-Dec-21	06-Jan-22	0%						
	recast Pier & 2nd Pour for Pile Cap - 5H	22	22	15-Nov-21	06-Dec-21	070						
S1-PP2020	Preparation work and delivery works for Pier 5H	10	10	15-Nov-21 15-Nov-21	24-Nov-21	0%						
		1							1		: 	Date
Remaini Actual W	ing Level of Effort Critical Remaining Work		<b>7</b> 11		יי יוו.ר			1. ^	0.3.1 Ŧ			)8-Oct-21
	Vork ♦ ♦ Milestone ing Work ▼ Summary		Inre	e wonth I	soming Pro	ogramn	ie (Octo	ober 2	uzi - Jan	uary 2022)	F	

21	28 0		19 26	January2022 02 09
		Fabrication	of segment for Pier 2L	
			-	nent for Pier 5W (2MD) Fabrication of segment 1
				radication of segment i
ier for Pier 1L (	Black Rainstorn	n on 7 Oct 2021)		
recast pier for 1	Pier 5H			
Fabric	ation of precast j	pier for Pier 2L		
				Fabrication of pre
		6 D: 011		
Fabricatio	n of precast pier	for Pier 9H	Estimation of anosots	in for Dire 5C
			Fabrication of precast p	ner for Fier SC
			Fabrication of precast p	pier for Pier 5D
			Fabr	ication of precast pier fo
				-
for Pile Cap -	:			
r 1L (Bridge M		ainstorm on 7 Oct 20		Pile Con 11
paration work	and delivery wor		ecast Pier & 2nd Pour fo	r File Cap - IL
			ecast pier and 2st pour fo	
	·		▼ Stage	
			and delivery works for	
			<ul> <li>Segment ere</li> </ul>	ction between Pier 1L-1
			Segment I	Erection between Pier 11 work and delivery work
				rection between Pier 11
			-	t Erection between Pier
		Preparation work a	nd delivery works for se	gment between Pier 1L
			-	t erection between Pier
		_	-	ent Erection between Pi work and delivery work
			Segment	ent erection between Pie
		·		
<u></u>				
			nstallation of Precast Pie	er & 2nd Pour for Pile C
	P1	-	lelivery works for Pier 2	
	-		nsatllation of precast pie	r and 2st pour for pile c
				<ul> <li>Installat</li> <li>eparation work and deli</li> </ul>
			Pr	Insatllat
	<b>▼</b> In	stallation of Precast F	Pier & 2nd Pour for Pile	
Preparatio		very works for Pier 51		
	Revis		Checked	Approved
3MR	P (Oct21 - J	an 22)		

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S1-PP3020	Insatllation of precast pier and 2st pour for pile cap 5H	10	10	25-Nov-21	06-Dec-21	Complete 0%	26 03	10 17 24 31 07 14
						0%		
Installation of Preca S1-PP2120	ast Pier & 2nd Pour for Pile Cap - 9H Preparation work and delivery works for Pier 9H	22	22 10	25-Nov-21 25-Nov-21	16-Dec-21 04-Dec-21	0%		
S1-PP3100	Insatllation of precast pier and 2st pour for pile cap 9H	10	10	06-Dec-21	16-Dec-21	0%		
	ast Pier & 2nd Pour for Pile Cap - 5D	20	20	19-Dec-21	07-Jan-22			
S1-PP2200	Preparation work and delivery works for Pier 5D Insatllation of precast pier and 2st pour for pile cap 5D	9	9	19-Dec-21	27-Dec-21 07-Jan-22	0%		
S1-PP3180	ast Pier & 2nd Pour for Pile Cap - 5E	22	22	28-Dec-21 28-Dec-21	18-Jan-22	0%		
S1-PP2280	Preparation work and delivery works for Pier 5E	10	10	28-Dec-21	06-Jan-22	0%		
S1-PP3260	Insatllation of precast pier and 2st pour for pile cap 5E	10	10	07-Jan-22	18-Jan-22	0%		
	of Bridge Segments Segments for Bridge S400 and Bridge CT	44 44	44 44	10-Dec-21 10-Dec-21	22-Jan-22 22-Jan-22			
	between Pier 5H and Pier W5 - Stage 2-1 Preparation work and delivery works for segment between Pier 5H and W5 (B2-2)	15 14	15 14	25-Dec-21 25-Dec-21	08-Jan-22 07-Jan-22	0%		
	Segment erection between Pier 5H and Pier W5	1	1	08-Jan-22	07 Jun 22 08-Jan-22	0%		
	between Pier 9H and Pier W5 - Stage 2-2	31	31	10-Dec-21	09-Jan-22			
	Preparation work and delivery works for segment between Pier 9H and W5 (B3-2)	14	14	10-Dec-21	23-Dec-21	0%		
	Segment erection between Pier 9H and Pier W5	1	1	09-Jan-22	09-Jan-22	0%		
	between Pier 9B and Pier 9C - Stage 2-4 Preparation work and delivery works for segment between Pier 9B and pier 9C (B3-3)	14 14	14 14	09-Jan-22 09-Jan-22	22-Jan-22 22-Jan-22	0%	,	
Segment erection t S1-EB2050	between Pier 5C and Pier 5D - Stage 2-3 Preparation work and delivery works for segment between Pier 5C and 5D (B4-2)	17 14	17 14	25-Dec-21 25-Dec-21	10-Jan-22 07-Jan-22	0%		
S1-EB2050	Segment erection between PierSC and Pier 5D	14	1	10-Jan-22	10-Jan-22	0%		
	Pier 5B, 9B, 5C, 9C, 5G, 9G)	64	42	16-Sep-21 A	18-Nov-21			
Bored Pile Machine	e1	55	37	20-Sep-21 A	13-Nov-21			V Bored Pi
Piling Works for Pie S1-PW3160	er 6B (Bridge S400) Piling platform installation (Black Rainstorm on 7 Oct 2021)	37 2	37 2	04-Oct-21 A 04-Oct-21 A	13-Nov-21 09-Oct-21	70%		<ul> <li>Piling platform installation (Black Rainstorm on 7 Oct 2021)</li> </ul>
Pile 5B1 S1-PW3180	Drive Casing & excavate to founding level	11	<u>11</u> 9	11-Oct-21 11-Oct-21	23-Oct-21 21-Oct-21	0%		Pile 5B1 Drive Casing & excavate to founding level
	D Install steel cage and concreting	2	2	22-Oct-21	23-Oct-21	0%		Install steel cage and concreting
Pile 5B2		11	11	25-Oct-21	05-Nov-21			Pile 5B2 Drive Casing & excavate to f
	Drive Casing & excavate to founding level	9	9	25-Oct-21	03-Nov-21	0%		Drive Casing & excavate to in Install steel cage and com
Testing	Install steel cage and concreting	7	2	04-Nov-21	05-Nov-21	070		
	Sonic Test, interface core and full core for bored pile	7	7	06-Nov-21	13-Nov-21	0%		Sonic Testing
Pile 5C1	er 5C (Bridge S400)	26	8	20-Sep-21 A 20-Sep-21 A	15-Oct-21 30-Sep-21 A	1000/	Pile 5C1	Piling Works for Pier 5C (Bridge S400)     excavate to founding level
	Drive Casing & excavate to founding level           Install steel cage and concreting	8	0	20-Sep-21 A	29-Sep-21 A	100%		
Testing		7	7	30-Sep-21 A 08-Oct-21	30-Sep-21 A	10070		Testing
S1-PW3140	Sonic Test, interface core and full core for bored pile	7	7	08-Oct-21	15-Oct-21	0%		Sonic Test, interface core and full core for bored pile
Bored Pile Machine Piling Works for Pie		59 37	37 37	16-Sep-21 A 04-Oct-21 A	13-Nov-21 13-Nov-21			▼ Bored Pi ▼ Piling W
S1-PW3640	Piling platform installation (Black Rainstorm on 7 Oct 2021)	2	2	04-Oct-21 A	09-Oct-21	70%		Piling platform installation (Black Rainstorm on 7 Oct 2021)
Pile 9B1 S1-PW3660	Drive Casing & Grab to excavate the soil	9	11 9	11-Oct-21 11-Oct-21	23-Oct-21 21-Oct-21	0%		
S1-PW3700	Install steel cage and concreting	2	2	22-Oct-21	23-Oct-21	0%		Install steel cage and concreting
Ple9B2 S1-PW3720	Drive Casing & Grab to excavate the soil	<u> </u>	11 9	25-Oct-21 25-Oct-21	05-Nov-21 03-Nov-21	0%	,	Pile 9B2 Drive Casing & Grab to exca
	D Install steel cage and concreting	2	2	04-Nov-21	05-Nov-21	0%		Install steel cage and cond
Testing	Sonic Test, interface core and full core for bored pile	7	7	06-Nov-21	13-Nov-21 13-Nov-21	0%		Testing Sonic Te
Piling Works for Pie		30	8	06-Nov-21 16-Sep-21 A	13-Nov-21 15-Oct-21	0%		→ Piling Works for Pier 9C (Bridge CT)
Pile 9C1	Drive Casing & Grab to excavate the soil	8 8 8	0 0	16-Sep-21 A 16-Sep-21 A	27-Sep-21 A 23-Sep-21 A	100%	Pile 9C1 Drive Casing & Grab to excav	
S1-PW3600	Install steel cage and concreting	2	0	24-Sep-21 A	27-Sep-21 A	100%	Install steel cage and c	xoncreting
Testing S1-PW3620	Sonic Test, interface core and full core for bored pile	7	7	08-Oct-21 08-Oct-21	15-Oct-21 15-Oct-21	0%		Testing Sonic Test, interface core and full core for bored pile
Bored Pile Machine		42	42	07-Oct-21 A	13-0ct-21 18-Nov-21	070		
Piling Works for Pie		42	42	07-Oct-21 A 07-Oct-21 A 07-Oct-21 A	18-Nov-21 18-Nov-21 12-Oct-21	60%		Piling platform installation (Black Rainstorm on 7 Oct 2021)
				13-Oct-21	27-Oct-21			Pile 5G1 Pil
Pile 5G1	Drive Casing & Grab to excavate the soil	12 10	12	13-Oct-21	25-Oct-21	0%		

Preparation work and Preparation work and delivery Preparation work and delivery Works (For Pier 5B, 9B, 5C, 9C, 5G, 9G) hine 1 r Pier 5B (Bridge S400) g level	2
Insatllation of precast pier and 2st pour for pile cap 5H Installation of Precast Pier & 2nd Pour for P Preparation work and delivery works for Pier 9H Insatllation of precast pier and 2st pour for p Preparation work and Preparation work and Preparation work and	09
Preparation work and delivery works for Pier 9H Preparation work and Preparation work and Preparation work and delivery Prepar	File Con
Preparation work and Preparation work and Preparation work and delivery Preparation work and delivery Berger SB, 9B, 5C, 9C, 5G, 9G) hine 1 Pier 5B (Bridge 5400) g level	ne Caj
Preparation work and Preparation work and delivery Preparation work and delivery Works (For Pier 5B, 9B, 5C, 9C, 5G, 9G) hine 1 Pier 5B (Bridge 5400) g level	
Preparation work and delivery Preparation work and delivery Works (For Pier 5B, 9B, 5C, 9C, 5G, 9G) hine 1 Pier 5B (Bridge 5400) g level	Instal
Works (For Pier 5B, 9B, 5C, 9C, 5G, 9G) hine 1 Pier 5B (Bridge 5400)	Insatl
Works (For Pier 5B, 9B, 5C, 9C, 5G, 9G) hine 1 Pier 5B (Bridge 5400)	Prepara
Preparation work and delivery Works (For Pier 5B, 9B, 5C, 9C, 5G, 9G) hine 1 Pier 5B (Bridge 5400) g level	
Preparation work and delivery Works (For Pier 5B, 9B, 5C, 9C, 5G, 9G) inine 1 Pier 5B (Bridge 5400) g level	
Preparation work and delivery Works (For Pier 5B, 9B, 5C, 9C, 5G, 9G) inine 1 Pier 5B (Bridge 5400) g level	<ul> <li>Seg</li> <li>Prepa</li> </ul>
Preparation work and delivery Works (For Pier 5B, 9B, 5C, 9C, 5G, 9G) inne 1 Pier 5B (Bridge 5400)	<ul> <li>Seg</li> </ul>
Works (For Pier 5B, 9B, 5C, 9C, 5G, 9G) ine 1 Pier 5B (Bridge 5400)	- s
hine 1 Pier 5B (Bridge 5400) g level	y work
hine 1 Pier 5B (Bridge 5400) g level	- 3
nine 1 Pier 5B (Bridge 5400) g level	
nine 1 Pier 5B (Bridge 5400) g level	Prepa
nine 1 Pier 5B (Bridge 5400) g level	•
g level	
face core and full core for bored pile	
nine 2 Pier 9B (Bridge CT)	
soil	
face core and full core for bored pile	
Pile Machine 3 Works for Pier 5G (Bridge S400)	
Revision Checked Approve	ed
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+OI /	me	Original Duration	Remaining Duration	n Start	Finish	Physical % Complete			October 2021	November 2021
S1-PW3380 Install	steel cage and concreting	2	2	26-Oct-21	27-Oct-21	Complete 0%		03	10 17 24 Install	31 07 14 steel cage and concreting
Pile 5G2	Casing & Grab to excavate the soil	12 10	12 10	28-Oct-21 28-Oct-21	10-Nov-21 08-Nov-21	0%		- - - - - - - - - - - - - - - - - - -	· · · ·	<ul> <li>Pile 5G2</li> <li>Drive Casing &amp; Grab to</li> </ul>
	steel cage and concreting					0%		- - - - - - -		<ul> <li>Install steel cage an</li> </ul>
S1-PW3440 Install	sieer cage and concreting	2	2	09-Nov-21	10-Nov-21	0%				
S1-PW3460 Sonic	Test, interface core and full core for bored pile	7	7	11-Nov-21 11-Nov-21	18-Nov-21 18-Nov-21	0%		- - - - -		Tes Southern
Bored Pile Machine 4 Piling Works for Pier 9G (Brid	the CTI	40	40 40	07-Oct-21 A	16-Nov-21			-		Bored     Piling
	platform installation (Black Rainstorm on 7 Oct 2021)	2	2	07-Oct-21 A 07-Oct-21 A	16-Nov-21 09-Oct-21	60%		-	<ul> <li>Piling platform installation (Black Rainston</li> </ul>	
Ple9G1	Coning & Carls to avagate the soil	12 10	12	11-Oct-21	25-Oct-21	0%			▼ Pile 9G1	Grab to excavate the soil
	Casing & Grab to excavate the soil		10	11-Oct-21	22-Oct-21					cage and concreting
Pile9G2	steel cage and concreting	2	2	23-Oct-21	25-Oct-21	0%				
	Casing & Grab to excavate the soil	12 10	12 10	26-Oct-21 26-Oct-21	08-Nov-21 05-Nov-21	0%				Pile 9G2 Drive Casing & Grab to exca
S1-PW3920 Install	steel cage and concreting	2	2	06-Nov-21	08-Nov-21	0%				Install steel cage and c
Testing		7	7	09-Nov-21	16-Nov-21	09/				Testin Sonic
	Test, interface core and full core for bored pile			09-Nov-21	16-Nov-21	0%		*		Solic
	Cap & 1st Pour for Pile Cap ation of pilecap and 1st pour for Pier 5H (Bridge S400-2)	135 26	106 30	24-Aug-21 A 18-Sep-21 A	17-Feb-22 13-Nov-21	20%				Insatllation
S1-PC1040 Insatll	ation of pilecap and 1st pour for Pier 9H (Bridge CT-2)	26	26	28-Oct-21	26-Nov-21	0%				
S1-PC1060 Insatl	ation of pilecap and 1st pour for Pier 5D (Bridge S400-1)	26	26	15-Nov-21	14-Dec-21	0%		- - - - -		
	ation of pilecap and 1st pour for Pier 5E (Bridge S400-1)	26	26	19-Sep-21 A	23-Dec-21	10%				
	ation of pilecap and 1st pour for Pier 9D (Bridge CT-1)	26	26	13-Dec-21	14-Jan-22	0%		-		
	ation of pilecap and 1st pour for Pier 9E (Bridge CT-1)	26	26	20-Sep-21 A	17-Feb-22	10%				
	ation of pilecap and 1st pour for Pier 5F (Bridge S400-2)	26	18	24-Aug-21 A	21-Jan-22	40%		-		
	ation of pilecap and 1st pour for Pier 9F (Bridge CT-2)	26	30	24-Aug-21 A	04-Feb-22	35%		- - - - - -		
	ation of pilecap and 1st pour for Pier 5B (Bridge S400-1)	26	26	30-Nov-21	31-Dec-21	0%				
		26	20	10-Dec-21	12-Jan-22	0%				
	ation of pilecap and 1st pour for Pier 9B (Bridge CT-1)							- - - - - -		
	ation of pilecap and 1st pour for Pier 5C (Bridge 400-1)	26	26	15-Nov-21	14-Dec-21	0%				
	ation of pilecap and 1st pour for Pier 9C (Bridge CT-1)	26	26	10-Dec-21	12-Jan-22	0%				
	ation of pilecap and 1st pour for Pier 5G (Bridge S400-2)	26	26	21-Dec-21	22-Jan-22	0%				
	ation of pilecap and 1st pour for Pier 9G (Bridge CT-2)	26	26	28-Dec-21	27-Jan-22	0%		- - - - - -		
S1-PC2150 Insatll	ation of pilecap and 1st pour for Pier 2L (Bridge S200-3)	26	26	03-Nov-21	02-Dec-21	0%		-		
nstruction Work for Pier ling Works for Pier 2K (E		13	13	28-Dec-21 28-Dec-21	12-Jan-22 12-Jan-22					
	platform installation	2	2	28-Dec-21	29-Dec-21	0%				
Pile 2K1		11	11	30-Dec-21	12-Jan-22					
	Casing & Grab to excavate the soil	5	5	30-Dec-21	05-Jan-22	0%		-		
	RCD and excavate the rock under rockhead level to founding level	6	6	06-Jan-22	12-Jan-22	0%				
n 2 of Works-All Wo Main Bridge and Ma	rks within Portion II,III,IV and VI	393 393	190 190	01-Jun-21 A 01-Jun-21 A	01-Jun-22 01-Jun-22			-		
ncrete Bridge		393	190	22-Jul-21 A	01-Jun-22			- - - - -		
onstruction of Stitching a Construction of Transverse		134 48	84 0	22-Jul-21 A 22-Jul-21 A	18-Jan-22 25-Sep-21 A		- Construct	on of Transver	rse Stitching	2 2 2 2 2 2 2 2 2
	uction of transverse stitch at E4 (NCE No.162 & inclement weather on 4 Aug 21 - 7 Aug 21)	48	0	22-Jul-21 A	25-Sep-21 A	100%			se stitch at E4 (NCE No. 162 & inclement weathe	r on 4 Aug 21 - 7 Aug 21)
Top Tension and Transver		44	14	16-Sep-21 A	25-Oct-21				Top Tensio	n and Transverse Tension
1	nd transverse tension at SW3	9	0	16-Sep-21 A	27-Sep-21 A	100%	Top	and transverse	tension at SW3	
S2-CB3120 Top at	nd transverse tension at NW4	9	9	15-Oct-21	25-Oct-21	0%				ansverse tension at NW4
	nd transverse tension at SW4	9	5	02-Oct-21 A	13-Oct-21	75%			Top and transverse tension at SW4	
S2-CB3140 Top at	ad transverse tension at NE4	9	6	30-Sep-21 A	15-Oct-21	50%	-		Top and transverse tension at N	
S2-CB3145 Top at	nd transverse tension at SE4	9	9	08-Oct-21	19-Oct-21	0%		- - - - -	Top and transverse ten	sion at SE4
S2-CB3160 Top at	ad transverse tension at SE7	9	0	18-Sep-21 A	29-Sep-21 A	100%		fop and transv	erse tension at SE7	
Bottom Tension and Exten S2-CB3245 Botton	al Tension n tension and external tension for NW4-3	52 18	57 18	29-Sep-21 A 26-Oct-21	14-Dec-21 15-Nov-21	0%	-			Bottor
	n tension and external tension for SW4-3	18	18	20-Oct-21 29-Oct-21	13-Nov-21 18-Nov-21	0%				
										Bottom tension and extern
S2-CB3260 Botton	n tension and external tension for NE4-5	18	18	16-Oct-21	05-Nov-21	0%				Bouom tension and externa
- Demointe l										Dat
<ul> <li>Remaining Leve</li> <li>Actual Work</li> </ul>	0			<b>N</b>	י אור				021 - January 2022)	08-Oct-21
	Milestone	1								

24			28	1	05		December 202 12	19		26	January2022 02 09
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est, int	erfac	e co	re and	full co	re for bo	ored pi	le				
Machir						-					
		G (B	ridge (	CT)							
the soi	1										
ting											
interfe	ce co	ne or	d foll	one fo	r bored	nile					
	~ 00	.e al				Pile					
cap an	d 1st	pou	r for Pi	er 5H	(Bridge	s400-	-2)				
								9H (Brid	re (T-2)		
				d	1	- r <sup>5001</sup>					for Dien 5D (Duild
							nsatil:				r for Pier 5D (Bridge
									Insatlla	ation of p	ilecap and 1st pour f
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											Insatllation of pileca
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							Incotil	ation	ilecon	1101-0-0-	r for Pier 5C (D-1-1-
							msaul	auon or p	necap and	1 1 SL POU	r for Pier 5C (Bridge
					-						
											•
		-	- In	satllat	ion of p	ilecap	and 1st p	our for Pi	ier 2L (Br	idge S20	90-3)
											ing platform installati
										- Fi	ing plauorin installau
										_	Drive Cas
							<b>.</b> P		15		
n and	exter	nal t	ension	for NV	N4-3		✓ Bottor	n lension	and Exte	ernal Ter	ision
					for SW	4-3					
on for l					.,						
/11 10F 1	NC/4-	J									
				Par	icion				hooka	<u>,  </u>	Approved
	3M	RP			ision Jan 2	2)			hecked	-	Approved
	511	. N.	,000	~ 1 -	Junz	)		1			

		Original Duration	Remaining Duration			Complete	26	October 2021 03 10 17 24 31 07	14
S2-CB3265	Bottom tension and external tension for SE4-5	18	18	28-Oct-21	17-Nov-21	0%			
S2-CB3267	Bottom tension and external tension for SE3-4	18	18	03-Nov-21	23-Nov-21	0%			
S2-CB3270	Bottom tension and external tension for SE6-7	18	5	30-Sep-21 A	16-Oct-21	70%		Bottom tension and external tension for SE6-7	
S2-CB3280	Bottom tension and external tension for SE7-A	18	5	29-Sep-21 A	13-Oct-21	55%		Bottom tension and external tension for SE7-A	
S2-CB3320	Bottom tension and external tension for NE3-4	18	18	10-Nov-21	30-Nov-21	0%		-	
S2-CB3340	Bottom tension and external tension for NE2-3	18	18	24-Nov-21	14-Dec-21	0%			
S2-CB3360	Bottom tension and external tension for SE2-3	18	18	24-Nov-21	14-Dec-21	0%			
S2-CB3370	Bottom tension and external tension for NW3-2	18	18	20-Nov-21	10-Dec-21	0%			
S2-CB3380	Bottom tension and external tension for SW3-2	18	18	20-Nov-21	10-Dec-21	0%			
Construction of Lor S2-CB3420	ng Stitching Construction of long stitching for W5-W3	101 27	84 27	16-Sep-21 A 19-Nov-21	18-Jan-22 20-Dec-21	0%			
S2-CB3430	Construction of long stitching for W3-W2	27	27	11-Dec-21	14-Jan-22	0%			
S2-CB3440	Construction of long stitching for E5-E6	27	5	16-Sep-21 A	21-Oct-21	80%		Construction of long stitching for E5-E6	
S2-CB3460	Construction of long stitching for E6-E7	27	25	30-Sep-21 A	06-Nov-21	15%		Constructi	on of long s
S2-CB3480	Construction of long stitching for E7-EA	27	27	19-Oct-21	18-Nov-21	0%			
S2-CB3500	Construction of long stitching for E4-E5	27	27	30-Nov-21	03-Jan-22	0%			
S2-CB3520	Construction of long stitching for E3-E4	27	27	01-Dec-21	04-Jan-22	0%			
S2-CB3540	Construction of long stitching for E2-E3	27	27	15-Dec-21	18-Jan-22	0%			
Procurement and D		240	190	31-Aug-21 A	01-Jun-22				
S2-CB2488	Procurement and delivery of bituminous materials	240	190	31-Aug-21 A	01-Jun-22	65%			
Road Works and Su		121	121	01-Dec-21	03-May-22				
Fabrication and Del S2-CB5480	Invery Works Fabrication and delivery of steel post and transom for L3 parapet	121 60	121 60	01-Dec-21 01-Dec-21*	03-May-22 15-Feb-22	0%			
S2-CB5500	Fabrication and delivery of steel works for isolation panel	80	80	01-Dec-21*	10-Mar-22	0%			
S2-CB5520	Fabrication of PMMA panel	90	90	10-Jan-22*	03-May-22	0%			
Construction of Sig	gn Gantries	61	61	20-Oct-21	31-Dec-21			<b>-</b>	
Fabrication Works S2-FW1000	Fabrication of sign gantry post	53 25	53 25	20-Oct-21 20-Oct-21*	20-Dec-21 17-Nov-21	0%		<b>•</b>	
						0%			
S2-FW1020	Fabrication of sign gantry transom	20	20	27-Nov-21 18-Nov-21	20-Dec-21	0%			
S2-CB4530	Installation of sign gantry post at E7-EA, E3-E4 & W3-W2	36 6	36 6	18-Nov-21 18-Nov-21	31-Dec-21 24-Nov-21	0%			
S2-CB4570	Survey of ganrty on site	2	2	25-Nov-21	26-Nov-21	0%			
S2-CB4610	Installation of sign gantry transom	8	8	21-Dec-21	31-Dec-21	0%			
Steel Bridge		273	166	01-Jun-21 A	03-May-22				
Road Works and Su Road Works and S		157 120	157 120	20-Oct-21 28-Oct-21	03-May-22 23-Mar-22			·	
S2-RW1000	Waterproofing for division area	65	65	28-Oct-21	14-Jan-22	0%			
S2-RW1015	Installation of pre-cast planter type 1 and type 2	25	25	15-Nov-21	13-Dec-21	0%			
S2-RW1020	Installation of ducting and in-situ concreting	50	50	26-Nov-21	26-Jan-22	0%			
S2-RW1069	Waterproofing for footpath	15	15	04-Jan-22	20-Jan-22	0%			
S2-RW1130	Installation of steel plate for L3 parapet	50	50	03-Nov-21	03-Jan-22	0%			
S2-RW1140	Installation of isolation steel post	45	45	14-Dec-21	10-Feb-22	0%			
S2-RW1160	Installation of L3 railing	60	60	10-Jan-22	23-Mar-22	0%			
Fabrication and De		157	157	20-Oct-21	03-May-22			····	
	Fabrication and delivery of steel post and transom for L3 parapet	60	60	15-Nov-21*	26-Jan-22	0%			
S2-CB5540	Fabrication and delivery of steel works for isolation panel	60	60	20-Oct-21*	30-Dec-21	0%			
S2-CB5560				10-Jan-22*	03-May-22	0%			
S2-CB5560 S2-CB5580	Fabrication of PMMA panel	90	90						
S2-CB5560 S2-CB5580 Welding & Painting	Fabrication of PMMA panel Works	170	63	01-Jun-21 A	21-Dec-21 21-Dec-21				
S2-CB5560 S2-CB5580 Welding & Painting Preparation Works Removal of the Ten	Fabrication of PMMA panel Works property Stiffening Supports inside the Steel Box	170 170 30	63 63 30	01-Jun-21 A 01-Jun-21 A 17-Nov-21	21-Dec-21 21-Dec-21				<u> </u>
S2-CB5560 S2-CB5580 Welding & Painting Preparation Works Removal of the Ten S2-SB2020	Fabrication of PMMA panel Works mporary Stiffening Supports inside the Steel Box Removal of the temporary stiffening supports inside the steel box	170 170 30 30	63 63	01-Jun-21 A 01-Jun-21 A 17-Nov-21 17-Nov-21	21-Dec-21 21-Dec-21 21-Dec-21	0%			-
S2-CB5560 S2-CB5580 Welding & Painting Preparation Works Removal of the Ten	Fabrication of PMMA panel Works mporary Stiffening Supports inside the Steel Box Removal of the temporary stiffening supports inside the steel box	170 170 30	63 63 30	01-Jun-21 A 01-Jun-21 A 17-Nov-21	21-Dec-21 21-Dec-21	0%			-
S2-CB5560 S2-CB5580 Welding & Painting Preparation Works Removal of the Ten S2-SB2020 Activation of the Pe S2-SB1520 5% NDT (Eddy Cum	Fabrication of PMMA panel Works mporary Stiffening Supports inside the Steel Box Removal of the temporary stiffening supports inside the steel box andulum Bearing Activation of permanent bearing and removal of temporary jacks from the Pier W1 (after completion of transition section)	170 170 30 30 6	63 63 30 30 6	01-Jun-21 A 01-Jun-21 A 17-Nov-21 17-Nov-21 26-Nov-21	21-Dec-21 21-Dec-21 21-Dec-21 02-Dec-21			Deck steel box	•

	December 20		January 2022
21 ension and exter	28 05 12 thal tension for SE4-5	19 26	02 09
Bottom tensi	on and external tension for SE3-4		
- Doublin tensi	sh and external tension for 5E5-4		
	Bottom tension and external tension	on for NE3-4	
	Datta	m tension and external ter	aion for NE2 2
	Botto	om tension and external ter	nsion for SE2-3
	Bottom tensio	on and external tension for	NW3-2
	Bottom tensio	on and external tension for	SW3-2
		Construction of lon	g stitching for W5-W3
or E6-E7			
uction of long sti	tching for E7-EA		
			Construction
			Constructio
	•		
			-
			Construction of Sig
		<ul> <li>Fabrication Works</li> </ul>	Construction of Sig.
n of sign gantry	post		
		Fabrication of sign	gantry transom
			<ul> <li>Installation Works</li> </ul>
Installation	of sign gantry post at E7-EA, E3-E	4 & W3-W2	
Survey	of ganrty on site		
			Installation of sign g
			insumation of sign g
	Installa	tion of pre-cast planter typ	e 1 and type 2
			Installation of
			_
			Fabrication and delive
			raoneauon anu ucilve
			-
		▼ Welding & Paint	
		Preparation Work     Removal of the 1	ts Femporary Stiffening Su
			emporary suffering sup
	Activation of the Pendulum B	earing	
	Activation of permanent beari		ary jacks from the Pier
	5% NDT (Eddy Current)		
-	,		
	:		:
	Revision	Checked	Approved
3MRF	9 (Oct21 - Jan 22)		

### Data Date :08-Oct-21 Sheet 6of 7

Base         Base <th< th=""><th>AdvityName</th><th>Original Duration</th><th>Remaining Duration</th><th>Start</th><th>Finish</th><th>Physical % Complete</th><th>October 2021         November 2021           26         03         10         17         24         31         07         14</th></th<>	AdvityName	Original Duration	Remaining Duration	Start	Finish	Physical % Complete	October 2021         November 2021           26         03         10         17         24         31         07         14
Bit	S2-SB1560 Arch ribs	45	44	06-Oct-21 A	29-Nov-21		
Provide Action of Same and Same						0%	
SucceNormalSucce <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>							
SecondSeco		27	27	05-Nov-21	06-Dec-21		· · · · · · · · · · · · · · · · · · ·
Normal sequenceNormal sequen	S2-SB2220 Removal of the temporary supports at W1	10	10	25-Nov-21	06-Dec-21	0%	
Note & Interpretation of the state of th	S2-SB2240 Removal of the temporary supports at W2	1	1	22-Nov-21	22-Nov-21	0%	
Note:	S2-SB2260 Removal of the temporary supports at E1	10	10	05-Nov-21	16-Nov-21	0%	Remo
13-bit Model Additional Mathema Mathama Mathama Mathama Mathema Mathema Mathema Mathema Mathema Matha	S2-SB2280 Removal of the temporary supports at E2	1	1	25-Nov-21	25-Nov-21	0%	
Model							<b>v</b>
Based of the subsystem	S2-SB2120 Secondary deck facilities welding	42	42	15-Oct-21		0%	
Second Second Second Second 						0%	Assembly of the w
Sharps     Solars     Allows     Allows <td></td> <td>15</td> <td>15</td> <td>11-Nov-21</td> <td>27-Nov-21</td> <td>0%</td> <td></td>		15	15	11-Nov-21	27-Nov-21	0%	
Sharp     Main Mathematical Mater     All     All<	S2-SB2200 Completion of Repair of the welding joint cracks at N19	0	0		27-Nov-21	0%	
Signer (Matrix and Line and Lin		60	16	25-Aug-21 A	27-Oct-21		Welding of the Joint between Main Span and the second
Softward     Open and high of a drama     0 <td>S2-SB1740 Welding of the U-rib and I-rib at the void between two boxes</td> <td>30</td> <td>10</td> <td></td> <td>20-Oct-21</td> <td>62%</td> <td></td>	S2-SB1740 Welding of the U-rib and I-rib at the void between two boxes	30	10		20-Oct-21	62%	
NameNa	S2-SB1760 Welding of the in-fill of ring weld (incl. NDT)	60	16	25-Aug-21 A	27-Oct-21	37%	Welding of the in-fill of ring weld (incl. NDT)
Note:	S2-SB1780 Completion of the joint of east side span	0	0		27-Oct-21	0%	<ul> <li>Completion of the joint of east side span</li> </ul>
\$23000     Minu dia un dia du vin dia la vin divenenza no nomo     10     10     \$25000     Minu dia un dia du vin dia la vin divenenza     10     10     10000     1000000     1000000     100000     100000     1000000     1000000     1000000     1000000     1000000     1000000     1000000     1000000     1000000     1000000     1000000     10000000     10000000     10000000     10000000     10000000000     100000000000     10000000000000     10000000000000000000000     1000000000000000000000000000000000000						100%	Weldi NDT for the ring weld of the west side span
Samma         skala dra skala dra med (ad N1)         42         32         Samma         Sa		30		-		75%	Welding of the U-rib and I-rib at th
3 50200       Gondon de hajaria versita segui       0							Weldi
Section with the section of the matrix section     10     10     20     20.52/1							
Solvey Solvey				29-Sep-21 A			
SCITCIO         Made of the form said skd         Image of the form	Construction of the west side transition	37	37	29-Sep-21 A	20-Nov-21	209/	Concreting of the transition section
Scattingsensing due frage and maken771718.802118.802118.802 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
Section         model distangenzy pick from the PW2         40         30         90-80-80         700-80-80							
Concriting of the marking seeking4040940 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>							
S2T10     Concernent of the transition section     15     16     06     25 - 0.2     06     06       S2C110     Weiling of the transition section     10     10     27 - 0.2     06 - 0.0     06       S2C112     Remain of the transition method     10     10     10     23 - 0.0     06       S2C112     Remain of the transition method     10     10     10     23 - 0.0     06       S2C112     Remain of the transition method     10     10     23 - 0.0     06       S2C112     Remain of the transition method     10     10     23 - 0.0     06       S2C112     Remain of the transition method     10     10     23 - 0.0     10     06       S2C112     Remain of the transition method     10     10     23 - 0.0     10     06       S2EM100     Remain of the transition method     10     10     23 - 0.0     100-0     100     10       S2EM100     Remain of the ensition addie method     10     10     100-0     100-0     100     100-0       S2EM100     Referention for the ensity plation     Referention for the ensity plation     10     10     100-0     100-0       S2EM101     Indition of the ensity plation     10     10     100-0     100-0 <td></td> <td></td> <td></td> <td></td> <td></td> <td>076</td> <td></td>						076	
S2C17100       Nessing of her Plar and tendom       7       7       7       16 Nov-21       23 Nov-21       00         S2C1720       Nessing of her Plar and tendom in the Pre E2       10       1       24 Nov-21       24 Nov-21       20 Nov-21 <td></td> <td></td> <td></td> <td></td> <td></td> <td>0%</td> <td>Concreting of the transition section</td>						0%	Concreting of the transition section
SCH120Mead of the temporary joke from the Pie E2InII </td <td>S2-CT1180 Welding of the box out on steel deck</td> <td>10</td> <td>10</td> <td>27-Oct-21</td> <td>06-Nov-21</td> <td>0%</td> <td>Welding of the box out on</td>	S2-CT1180 Welding of the box out on steel deck	10	10	27-Oct-21	06-Nov-21	0%	Welding of the box out on
Account of CMU warms         Service         Service <td>S2-CT1200 Stressing of the PT bar and tendons</td> <td>7</td> <td>7</td> <td>16-Nov-21</td> <td>23-Nov-21</td> <td>0%</td> <td></td>	S2-CT1200 Stressing of the PT bar and tendons	7	7	16-Nov-21	23-Nov-21	0%	
UBC         UP         U	S2-CT1220 Removal of the temporary jacks from the Pier E2	1	1	24-Nov-21	24-Nov-21	0%	
UBC         UBC <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
S2-EM100Assembly of the working platformAfAfOf 70-E-2110-De-21Of 70-E-21Of 70-E-21 <td>UBG</td> <td>29</td> <td>29</td> <td>07-Dec-21</td> <td>12-Jan-22</td> <td></td> <td></td>	UBG	29	29	07-Dec-21	12-Jan-22		
S2-EM1049Replacement of the cables and cable truy7711-Dec-2118-Dec-2100%S2-EM106installation of the control system5320-Dec-2122-Dec-2100%S2-EM108installation of the carthing6623-Dec-2101/Dec-2100%S2-EM109Removal of the working platform2204-Jan-2204/Jan-2200%S2-EM110Installation of the remaining mails3330-Dec-2104-Jan-220%S2-EM110Installation of the carthing2203-Jan-220/Jan-220%S2-EM110Installation of the control system3330-Dec-2131-Dec-210%S2-EM110Installation of the control system220/Jan-220/Jan-220%S2-EM110Installation of the control system7770/Jan-220%S2-EM110Installation of the control system220/Jan-220%S2-EM110Installation of the control system770/Jan-220%S2-EM120Installation of the control system220/Jan-220%S2-EM120Installation of the control system220/Jan-220%S2-EM120Installation of the control system220%0%S2-EM120Installation of the control system220%0%S2-EM120Installation of the control system220%0%S2-EM120Ins			22 4			0%	
S2-EM100Insulation of the control system3320-Dec-2122-Dec-2130/06S2-EM100Insulation of the control system6623-Dec-2131-Dec-210/06S2-EM100Removal of the working platform220/3-lan-220/4-lan-220/6VBO control system4423-Dec-2129-Dec-210/06S2-EM100Insulation of the control system330-Dec-210/3-lan-220/6S2-EM104Insulation of the control system220/3-Dec-210/060/6S2-EM105Insulation of the control system220/3-Dec-210/160/6S2-EM106Insulation of the control system220/3-Dec-210/160/6S2-EM108Insulation of the control system220/3-Dec-210/3-Dec-210/6S2-EM108Insulation of the control system220/3-Dec-210/3-Dec-210/6S2-EM108Asembly of the working platform220/3-Dec-210/3-Dec-210/6S2-EM108Asembly of the working platform220/3-Lan-220/3-Dec-210/3-Dec-21S2-EM108Insulation of the remaining mils330/4-Dec-220/40/6S2-EM108Insulation of the remaining mils221/2-Dec-220/60/6S2-EM108Insulation of the remaining mils221/2-Dec-220/60/6S2-EM108Insulation of the remaining	S2-EM1020 Installation of the remaining rails	12	12	11-Dec-21	24-Dec-21	0%	
S2-EM100Installation of the carthing6623-Dec-2131-Dec-2131-Dec-210S2-EM110Rowal of the working platform2203-Jan-2204-Jan-2204-Jan-22S2-EM110Asembly of the working platform3330-Dec-2131-Dec-210S2-EM110Installation of the remaining rails330-Dec-2131-Dec-2100S2-EM110Installation of the control system2230-Dec-21000S2-EM110Installation of the control system220000S2-EM120Asembly of the working platform220000S2-EM120Installation of the carthing220000S2-EM120Asembly of the working platform220000S2-EM120Installation of the carthing220000S2-EM120Installation of the remaining rails3030000S2-EM120Installation of the control system33010-Jan-22000S2-EM120Installation of the control system330310-Jan-2200S2-EM120Installation of the control system330310-Jan-2200S2-EM120Installation of the control system330310-Jan-2200 <td>S2-EM1040 Replacement of the cables and cable tray</td> <td>7</td> <td>7</td> <td>11-Dec-21</td> <td>18-Dec-21</td> <td>0%</td> <td></td>	S2-EM1040 Replacement of the cables and cable tray	7	7	11-Dec-21	18-Dec-21	0%	
S2-EM100Removal of the working platform2203-Jan-2204-Jan-2204-Jan-22S2-EM120Assembly of the working platform8823-Dec-2120-Jan-2204-Jan-22S2-EM120Assembly of the working platform3330-Dec-2120-Jan-2200-Jan-22S2-EM140Installation of the control system2230-Dec-2131-Dec-2100-Jan-22S2-EM180Installation of the control system2203-Jan-2200-Jan-2200-Jan-22S2-EM180Installation of the control system7705-Jan-2212-Jan-2200-Jan-22S2-EM120Assembly of the working platform4405-Jan-2212-Jan-2200-Jan-22S2-EM120Installation of the remaining rails3310-Jan-2212-Jan-2200-Jan-22S2-EM120Installation of the remaining rails3310-Jan-2212-Jan-2200-Jan-22S2-EM120Installation of the remaining rails3310-Jan-2212-Jan-2200-Jan-22S2-EM120Installation of the remaining rails2210-Jan-2210-Jan-2200-Jan-22S2-EM120Installation of the remaining rails2210-Jan-2200-Jan-2200-Jan-22S2-EM120Installation of the remaining rails2210-Jan-2200-Jan-2200-Jan-22S2-EM120Installation of the control system2210-Jan-2210-Jan-2200-Jan-22S2-EM120Installation o	S2-EM1060 Installation of the control system	3	3	20-Dec-21	22-Dec-21	0%	
LBG of the working platform8873 - Dec-2114 - Jan-22S2-EM1100Assembly of the working platform3330 - Dec-2129 - Dec-210%S2-EM1100Installation of the control system2230 - Dec-2131 - Dec-210%S2-EM1100Installation of the control system2230 - Dec-2131 - Dec-210%UB of the working platform2203 - Jan-220%0%S2-EM1200Installation of the remaining rails77705 - Jan-2212 - Jan-22S2-EM1200Installation of the remaining rails3310 - Jan-220%S2-EM1200Installation of the remaining rails3310 - Jan-2212 - Jan-22S2-EM1200Installation of the control system3310 - Jan-2210%S2-EM1200Installation of the remaining rails2210 - Jan-2211 - Jan-22S2-EM1200Installation of the control system3310 - Jan-2211 - Jan-22S2-EM1200Installation of the control system2210 - Jan-2211 - Jan-22S2-EM1200Installation of the control system2210 - Jan-2211 - Jan-22S2-EM1200Installation of the control system2210 - Jan-2210 - Jan-22S2-EM1200Installation of the control system2210 - Jan-2210 - Jan-22S2-EM1200Installation of the control system2210 - Jan-22	S2-EM1080 Installation of the earthing	6	6	23-Dec-21	31-Dec-21	0%	
S2-EMI120Assembly of the working platform4423-Dec-2129-Dec-210%S2-EM1140Installation of the remaining rails3330-Dec-2131-Dec-210%S2-EM1160Installation of the control system2230-Dec-2131-Dec-210%S2-EM1180Installation of the control system2203-Jan-2204-Jan-220%UBG of free arthing7705-Jan-2212-Jan-220%S2-EM120Assembly of the working platform4405-Jan-220%S2-EM120Installation of the control system3310-Jan-220%S2-EM120Installation of the control system3310-Jan-220%S2-EM120Installation of the control system3310-Jan-220%S2-EM120Installation of the control system3310-Jan-220%S2-EM120Installation of the control system2211-Jan-220%	S2-EM1100 Removal of the working platform	2	2	03-Jan-22	04-Jan-22	0%	
S2-EM114Installation of the remaining rails3330-Dec-2103-Jan-220%S2-EM1160Installation of the control system2230-Dec-2131-Dec-210%S2-EM1180Installation of the earthing2203-Jan-2204-Jar-220%USG of tee serving7705-Jan-2212-Jan-220%S2-EM120Assembly of the working platform4405-Jan-220%S2-EM120Installation of the remaining rails3310-Jan-220%S2-EM120Installation of the control system2210-Jan-220%S2-EM120Installation of the control system2210-Jan-220%S2-EM120Installation of the control system2210-Jan-220%S2-EM120Installation of the control system2210-Jan-220%S2-EM120Installation of the control system2210-Jan-220%		8					
S2-EM110Installation of the control system2230-Dec-2131-Dec-210%S2-EM1180Installation of the carthing2203-Jan-2204-Jan-220%UBG of the ownking platform7705-Jan-2212-Jan-220%S2-EM120Assembly of the wonking platform4405-Jan-220%S2-EM120Installation of the remaining rails3310-Jan-2212-Jan-220%S2-EM120Installation of the control system2210-Jan-2211-Jan-220%S2-EM120Installation of the control system2210-Jan-2211-Jan-220%							
S2-EM180Installation of the earthing2203-Jan-2204-Jan-220%UBG of the earthing7705-Jan-2212-Jan-220%S2-EM1200Asembly of the working platform4405-Jan-220%S2-EM1201Installation of the remaining rails3310-Jan-2212-Jan-22S2-EM1240Installation of the control system2210-Jan-2211-Jan-22S2-EM1240Installation of the control system2211-Jan-220%							
UBG of the east side span7705-Jan-2212-Jan-220%S2-EM120Assembly of the working platform4405-Jan-220%S2-EM120Installation of the remaining rails3310-Jan-2212-Jan-220%S2-EM1240Installation of the control system2210-Jan-2211-Jan-220%							
S2-EM1200Assembly of the working platform4405-Jan-220%S2-EM1200Installation of the remaining rails3310-Jan-2212-Jan-220%S2-EM1240Installation of the control system2210-Jan-2211-Jan-220%		2	2			0%	
S2-EM1240     Installation of the control system     2     2     10-Jan-22     11-Jan-22     0%		4	4		08-Jan-22	0%	
	S2-EM1220 Installation of the remaining rails	3	3	10-Jan-22	12-Jan-22	0%	
	S2-EM1240 Installation of the control system	2	2	10-Jan-22	11-Jan-22	0%	
installation of Other Systems 100 100 26-NoV-21 29-Mar-22 : : : :	Installation of Other Systems	100	100	26-Nov-21	29-Mar-22		

				December 2021		January 2022
21		28 Arch ribs	05	12	19 26	02 09
	uinting of	the Ring V		og weld		
eld						
au					rary Supports at W1 & E ary supports at W1	1
D	1 - 64				ary supports at w1	
		e temporary		it w2		
		supports at				
	Remova	- Secon	ing Works 1dary Deck	Facilities Weld		
g platfo		air of the W he welding		t Cracks at N19 r of N19	)	
	Weld	ling repair	and re-coat	ing		
	♦ Con	pletion of	Repair of th	ne welding join	t cracks at N19	
t Side	Span					
the Joi	nt betwe	en Main Sp	an and the	West Side Spar	1	
	een two l					
		g weld (inc				
		west side sp				
		west side		ransition Zone		
g of the	box out	on steel de	ck			
ing of	the PT b	ar and tend	ons			
noval	of the ter	nporary jac	ks from the	e Pier W2		
<b>-</b> C	onstructio	on of the ea	st side tran	sition		
leck						
Stre	ssing of t	he PT bar :	and tendons	s		
R	emoval c	of the tempo	orary jacks	from the Pier E	2	
•						
				Assembly of th	e working platform	<ul> <li>UBG of the</li> </ul>
					Installation	of the remaining rails
					Replacement of the cab	les and cable tray
					Installation of the	ne control system
						Installation of the ea
						Removal of
						UBG of the
					A	ssembly of the workin
						Installation of
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						Installation
						Ass
						•
	01.12		evision	0)	Checked	Approved
	змRF	P(Oct21	-Jan 2	2)		

#### Data Date :08-Oct-21 Sheet 7of 7

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

		ActivityName	Original Duration	Remaining Duration	Start	Finish	Physical %			Outur	ber 2021				November 2021	
							Complete	26	03	10	17	24	31	07	14	21
	S2-EM1360	SHMS installation	60	60	22-Dec-21	08-Mar-22	0%									
	S2-EM1380	Dehumidification system installaion in the stay cables	10	10	26-Nov-21	07-Dec-21	0%									
	S2-EM1400	Commission and testing of the dehumidification system	90	90	08-Dec-21	29-Mar-22	0%									
Sect	ion 5 of the Wor	rks-All Works within Portion V (CBL E&M Plantroom)	445	123	30-Jul-20 A	08-Mar-22	-									
Re	maining Work		445	123	30-Jul-20 A	08-Mar-22	-									
S	5-PR2120	External works (including lanscaping)	90	35	30-Jul-20 A	18-Nov-21	85%									External w
S	5-PR2200	Water works, pluming and drainage works	60	5	30-Jul-20 A	24-Nov-21	85%									
S	5-PR2285	Installation of SCADA and connect to dehumification system	63	63	18-Dec-21	08-Mar-22	0%									
Ma	jor Services Sys	tem	399	103	28-Sep-20 A	12-Feb-22	-									
_E	lectrical System		277	103	02-Oct-20 A	12-Feb-22										
	Generator Room		277	103	02-Oct-20 A	12-Feb-22										
	S5-PR2500	Generator Installation (Including E&M Work)	90	70	02-Oct-20 A	31-Dec-21	60%									
	S5-PR2540	Generator SAT	3	3	03-Jan-22	05-Jan-22	0%									
	S5-PR2545	Testing and Commissioning	30	30	06-Jan-22	12-Feb-22	0%									
N	VAC System		370	74	28-Sep-20 A	06-Jan-22										
	Installation of MVAC	C System	370	74	28-Sep-20 A	06-Jan-22										
	S5-PR2840	MVAC Installation Work	70	56	28-Sep-20 A	13-Dec-21	78%									
	S5-PR2900	MVAC Testing and Commissioning	18	18	14-Dec-21	06-Jan-22	0%									
	S5-PR2920	Accomplish of MVAC Installation	0	0		06-Jan-22	0%									

Remaining Work

♦ Milestone♥ Summary

Three Month Rolling Programme (October 2021 - January 2022)

			Dece	mber 2021						Januar	y2022	
21	28	05	12	2		19		26	· T	02		09
-		 Dehu	midificati	ion sys	tem ir	nstallai	on in 1	ihe stay	cable	s		
												_
al works ( Wate			ige works	s								
				_								
												_
												_
									Ge	nerator	r Insta	llatic
		 									Gene	rator
											▼ MV	
	 	 	M	VAC li							M	W.C
											<ul> <li>Ac</li> </ul>	

Revision	Checked	Approved
3MRP (Oct21 - Jan 22)		



**Contract 2** 

Data Date :08-Sep-21 Sheet 1 of 5

	ActivityName	Original Duration	Remaining Duration	Start	Finish	Physical % Complete	22 2	9	September 2021 October 2021 000000000000000000000000000000000
	ung Kwan O Main Bridge and Associated Works	662	190	24-Apr-20 A	16-Mar-22		-	~	
	ates and Section of the Works	0	0	08-Sep-21 08-Sep-21	08-Sep-21 08-Sep-21				Contractual Key Dates and Section of the Works
Contractual Key I KDS1240	Key Date 2- Completion of all Works in Bridges in Portion II of the Site necessary for installation and T&C of the TCSS	0	0	00-3ep-21	08-Sep-21*	0%			<ul> <li>Key Date 2- Completion of all Works in Bridges in Portion II of the Site necessary for inst</li> </ul>
cess Date		0	0	08-Sep-21	08-Sep-21			,	Access Date
AD1110	Access to Portion VI	0	0	08-Sep-21*		0%			Access to Portion VI
nned Key Date	and Section of the Works	0	0	08-Sep-21	08-Sep-21				Planned Key Dates and Section of the Works
Planned Key Date KDS1060	S Key Date 2- Completion of all Works in Bridges in Portion II of the Site necessary for installation and T&C of the TCSS	0	0	08-Sep-21	08-Sep-21 08-Sep-21*	0%			<ul> <li>Planned Key Dates</li> <li>Key Date 2- Completion of all Works in Bridges in Portion II of the Site necessary for insi</li> </ul>
	tractor's Design & Method Statement Submission & Approval	149	85	24-Apr-20 A	01-Dec-21	0,0			
	gn Submission and Approval	149	85	24-Apr-20 A	01-Dec-21				
CDS1140	Design of Functional lighting system, road lighting system, etc (incl. 7 days TRA)	97	13	24-Apr-20 A	20-Sep-21	84%			Design of Functional lighting system, road lighting system, etc (in
CDS1230	Design of cycle rack (incl. 14 days TRA)	111	85	12-Jun-21 A	01-Dec-21	40%			
ecasting & Fabr		397	155	09-Dec-20 A	09-Feb-22				
abrication of Pre Precast Shell	cast Shell and Precast Segments	397 240	155 0	09-Dec-20 A 09-Dec-20 A	09-Feb-22 31-Aug-21 A			recast Shell	
TKOI		240	0	09-Dec-20 A	31-Aug-21 A		<b></b> 1	KOI	
P-PS3145	Fabrication of Precast shell for pile cap of TKO entrustment work (total 17nos)	240	0	09-Dec-20 A	31-Aug-21 A	100%	F	abrication of 1	Precast shell for pile cap of TKO entrustment work (total 17nos)
Precast Segments P-PF1183	(TKOI Entrustment Works) Fabrication and Pre-stressing of segments for 5EU1-12,9EU1-12,1KNU0-15,1LSU2-15,1LNU2-15(total 70nos) (incl.7 days TRA)	186 90	155 62	24-Jul-21 A 24-Jul-21 A	09-Feb-22 08-Nov-21	37%			
P-PF1185	Fabrication and Pre-stressing of segments for 1KSU0-15,5AU4-12,9AU4-12,5BU1-13,9BU1-12(total 59nos) (incl.7 days TRA)	85	85	08-Sep-21	08-N0V-21 01-Dec-21	0%			
P-PF1184 P-PF1185	Fabrication and Pre-stressing of segments for 5CU1-13,9CU1-12,9EU1-13,9EU1-12,0EU1-12,	85	85	18-Oct-21	10-Jan-22	0%			
						0%			
P-PF1186	Fabrication and Pre-stressing of segments for 9GU1-12, 2JU1-13, 2LU1-13, 2LU1-13 (total 51nos) (incl.7 days TRA)	85	85	17-Nov-21	09-Feb-22				
P-PF1187	Fabrication of segment for pier head at 5D, 9D, 5E, 9E, 5F, 9F, 5H, 9H & 1L (total 18nos) (incl. 3 days TRA)	61	44	24-Aug-21 A	21-Oct-21	11%			
P-PF1188	Fabrication of segment for pier head at 5A, 9A, 5B, 9B, 5C, 9C 5G, 9G, 2J, 2K & 2L (total 17nos) (incl. 3 days TRA)	58	58	18-Oct-21	14-Dec-21	0%			
	brks- All Works within Portion I of the Site (Entrusted Works of TKOI Viaduct)	377 277	190 174	20-May-21 A 19-Jun-21 A	16-Mar-22 28-Feb-22				
	k (Works Available for Piles 5D,9D,5E, 9E, 5F, 9F, 5H, 9H, 1L, 2L)								Piling Works
				19-Jun-21 A	14-Sep-21				
Piling Works Bored Pile Machi		7	6	19-Jun-21 A	14-Sep-21				Bored Pile Machine 4
Piling Works Bored Pile Machi Piling Works for Testing	Pier 9H (Bridge CT)	7 7 7	6 6 6	19-Jun-21 A 19-Jun-21 A 19-Jun-21 A	14-Sep-21 14-Sep-21 14-Sep-21				Piling Works for Pier 9H (Bridge CT)     Testing
Piling Works Bored Pile Machi Piling Works for Testing S1-PW2180	Pier 9H (Bridge CT) Sonic Test, interface core and full core for bored pile	7 7 7 7 7	6 6 6 6	19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 19-Jun-21 A	14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21	90%			<ul> <li>Piling Works for Pier 9H (Bridge CT)</li> </ul>
Piling Works Bored Pile Machi Piling Works for Testing S1-PW2180	Pier 9H (Bridge CT)	7 7 7	6 6 6	19-Jun-21 A 19-Jun-21 A 19-Jun-21 A	14-Sep-21 14-Sep-21 14-Sep-21	90%			Piling Works for Pier 9H (Bridge CT)     Testing
Piling Works Bored Pile Machi Piling Works for Testing S1-PW2180 Installation of Pred	Pier 9H (Bridge CT) Sonic Test, interface core and full core for bored pile Ast Pile Cap & 1st Pour for Pile Cap	7 7 7 7 151	6 6 6 121	19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 15-Aug-21 A	14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 06-Jan-22				Piling Works for Pier 9H (Bridge CT)     Testing     Sonic Test, interface core and full core for bored pile
Piling Works Bored Pile Machi Piling Works for Testing S1-PW2180 Installation of Pred S1-PC1000	Pier 9H (Bridge CT) Sonic Test, interface core and full core for bored pile ast Pile Cap & 1st Pour for Pile Cap Delivery of precast pile cap shell	7 7 7 7 151 25	6 6 6 121 6	19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 15-Aug-21 A 15-Aug-21 A	14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 06-Jan-22 13-Sep-21	95%			Piling Works for Pier 9H (Bridge CT)     Testing     Sonic Test, interface core and full core for bored pile
Piling Works Bored Pile Machi Piling Works for Testing SI-PW2180 Installation of Pred SI-PC1000 SI-PC1010 SI-PC1020	Pier 9H (Bridge CT)         Sonic Test, interface core and full core for bored pile         ast Pile Cap & 1st Pour for Pile Cap         Delivery of precast pile cap shell         Insatllation of pilecap and 1st pour for Pier 1L (Bridge ML-3-2)         Insatllation of pilecap and 1st pour for Pier 5H (Bridge S400-2)	7 7 7 7 151 25 26	6 6 6 121 6 26	19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 15-Aug-21 A 15-Aug-21 A 20-Sep-21 09-Oct-21	14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 06-Jan-22 13-Sep-21 22-Oct-21 09-Nov-21	95%			Piling Works for Pier 9H (Bridge CT)     Testing     Sonic Test, interface core and full core for bored pile
Piling Works Bored Pile Machi Piling Works for Testing S1-PW2180 Installation of Pree S1-PC1000 S1-PC1010 S1-PC1020 S1-PC1040	Pier 9H (Bridge CT)         Sonic Test, interface core and full core for bored pile         ast Pile Cap & 1st Pour for Pile Cap         Delivery of precast pile cap shell         Insatllation of pilecap and 1st pour for Pier 1L (Bridge ML-3-2)         Insatllation of pilecap and 1st pour for Pier 5H (Bridge S400-2)         Insatllation of pilecap and 1st pour for Pier 9H (Bridge CT-2)	7 7 7 151 25 26 26 26 26	6 6 6 121 6 26 26 26	19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 15-Aug-21 A 15-Aug-21 A 20-Sep-21 09-Oct-21 23-Oct-21	14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 06-Jan-22 13-Sep-21 22-Oct-21 09-Nov-21 22-Nov-21	95% 0% 0%			Piling Works for Pier 9H (Bridge CT)     Testing     Sonic Test, interface core and full core for bored pile
Piling Works Bored Pile Machi Piling Works for Testing S1-PW2180 Installation of Pred S1-PC1000 S1-PC1010 S1-PC1020 S1-PC1040 S1-PC1060	Pier 9H (Bridge CT)         Sonic Test, interface core and full core for bored pile         ast Pile Cap & 1st Pour for Pile Cap         Delivery of precast pile cap shell         Insatllation of pilecap and 1st pour for Pier 1L (Bridge ML-3-2)         Insatllation of pilecap and 1st pour for Pier 5H (Bridge S400-2)         Insatllation of pilecap and 1st pour for Pier 9H (Bridge CT-2)         Insatllation of pilecap and 1st pour for Pier 5D (Bridge S400-1)	7 7 7 151 25 26 26 26 26 26	6 6 6 121 6 26 26 26 26 26	19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 15-Aug-21 A 20-Sep-21 09-Oct-21 23-Oct-21 04-Nov-21	14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 06-Jan-22 13-Sep-21 22-Oct-21 09-Nov-21 22-Nov-21 03-Dec-21	95% 0% 0% 0%			Piling Works for Pier 9H (Bridge CT)     Testing     Sonic Test, interface core and full core for bored pile
Piling Works Bored Pile Machi Piling Works for Testing S1-PW2180 Installation of Pree S1-PC1000 S1-PC1010 S1-PC1020 S1-PC1040 S1-PC1060 S1-PC1080	Pier 9H (Bridge CT)         Sonic Test, interface core and full core for bored pile         ast Pile Cap & 1st Pour for Pile Cap         Delivery of precast pile cap shell         Insatllation of pilecap and 1st pour for Pier 1L (Bridge ML-3-2)         Insatllation of pilecap and 1st pour for Pier 5H (Bridge S400-2)         Insatllation of pilecap and 1st pour for Pier 9H (Bridge CT-2)         Insatllation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insatllation of pilecap and 1st pour for Pier 5E (Bridge S400-1)	7 7 7 151 25 26 26 26 26 26 26 26	6 6 6 121 6 26 26 26 26 26 26	19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 15-Aug-21 A 20-Sep-21 09-Oct-21 23-Oct-21 04-Nov-21 04-Dec-21	14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 06-Jan-22 13-Sep-21 22-Oct-21 09-Nov-21 22-Nov-21 03-Dec-21 06-Jan-22	95% 0% 0% 0% 0%			Piling Works for Pier 9H (Bridge CT)     Testing     Sonic Test, interface core and full core for bored pile
Piling Works Bored Pile Machi Piling Works for Testing S1-PW2180 Installation of Pred S1-PC1000 S1-PC1010 S1-PC1020 S1-PC1040 S1-PC1060 S1-PC1080 S1-PC1120	Pier 9H (Bridge CT)         Sonic Test, interface core and full core for bored pile         ast Pile Cap & 1st Pour for Pile Cap         Delivery of precast pile cap shell         Insattlation of pilecap and 1st pour for Pier 1L (Bridge ML-3-2)         Insattlation of pilecap and 1st pour for Pier 5H (Bridge S400-2)         Insattlation of pilecap and 1st pour for Pier 9H (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 9D (Bridge CT-1)	7 7 7 151 25 26 26 26 26 26 26 26 26	6 6 6 121 6 26 26 26 26 26 26 26 26	19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 15-Aug-21 A 20-Sep-21 09-Oct-21 23-Oct-21 04-Nov-21 04-Dec-21 23-Nov-21	14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 06-Jan-22 13-Sep-21 22-Oct-21 09-Nov-21 22-Nov-21 03-Dec-21 06-Jan-22 22-Dec-21	95% 0% 0% 0% 0%			Piling Works for Pier 9H (Bridge CT)     Testing     Sonic Test, interface core and full core for bored pile     Delivery of precast pile cap shell
Piling Works Bored Pile Machi Piling Works for Testing S1-PW2180 S1-PC1000 S1-PC1000 S1-PC1020 S1-PC1040 S1-PC1060 S1-PC1060 S1-PC1080 S1-PC1120 S1-PC1160	Pier 9H (Bridge CT)         Sonic Test, interface core and full core for bored pile         ast Pile Cap & 1st Pour for Pile Cap         Delivery of precast pile cap shell         Insatllation of pilecap and 1st pour for Pier 1L (Bridge ML-3-2)         Insatllation of pilecap and 1st pour for Pier 5H (Bridge S400-2)         Insatllation of pilecap and 1st pour for Pier 9H (Bridge CT-2)         Insatllation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insatllation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insatllation of pilecap and 1st pour for Pier 5E (Bridge S400-1)         Insatllation of pilecap and 1st pour for Pier 5F (Bridge S400-2)	7 7 7 151 25 26 26 26 26 26 26 26 26 26	6 6 6 121 6 26 26 26 26 26 26 26 26 19	19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 15-Aug-21 A 20-Sep-21 09-Oct-21 23-Oct-21 04-Nov-21 04-Dec-21 23-Nov-21 24-Aug-21 A	14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 06-Jan-22 13-Sep-21 22-Oct-21 09-Nov-21 22-Nov-21 03-Dec-21 06-Jan-22 22-Dec-21 30-Sep-21	95% 0% 0% 0% 0% 0% 0%			Piling Works for Pier 9H (Bridge CT)     Testing     Sonic Test, interface core and full core for bored pile     Delivery of precast pile cap shell
Piling Works Bored Pile Machi Piling Works for Testing S1-PW2180 Installation of Pred S1-PC1000 S1-PC1010 S1-PC1020 S1-PC1040 S1-PC1060 S1-PC1080 S1-PC1120 S1-PC1120 S1-PC1120 S1-PC1180	Pier 9H (Bridge CT)         Sonic Test, interface core and full core for bored pile         ast Pile Cap & 1st Pour for Pile Cap         Delivery of precast pile cap shell         Insattlation of pilecap and 1st pour for Pier 1L (Bridge ML-3-2)         Insattlation of pilecap and 1st pour for Pier 5H (Bridge S400-2)         Insattlation of pilecap and 1st pour for Pier 9H (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5E (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 9P (Bridge CT-1)         Insattlation of pilecap and 1st pour for Pier 9P (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 9P (Bridge CT-1)         Insattlation of pilecap and 1st pour for Pier 9P (Bridge CT-2)	7           7           7           151           25           26	6 6 6 121 6 26 26 26 26 26 26 26 26 19 30	19-Jun-21 A           19-Jun-21 A           19-Jun-21 A           19-Jun-21 A           19-Jun-21 A           15-Aug-21 A           20-Sep-21           09-Oct-21           23-Oct-21           04-Nov-21           04-Dec-21           23-Nov-21           24-Aug-21 A	14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 13-Sep-21 22-Oct-21 09-Nov-21 22-Nov-21 03-Dec-21 06-Jan-22 22-Dec-21 30-Sep-21 15-Oct-21	95% 0% 0% 0% 0%			Piling Works for Pier 9H (Bridge CT)     Testing     Sonic Test, interface core and full core for bored pile     Delivery of precast pile cap shell
Piling Works Bored Pile Machi Piling Works for Testing S1-PW2180 Installation of Pred S1-PC1000 S1-PC1010 S1-PC1020 S1-PC1040 S1-PC1060 S1-PC1080 S1-PC1120 S1-PC1120 S1-PC1180	Pier 9H (Bridge CT)         Sonic Test, interface core and full core for bored pile         ast Pile Cap & 1st Pour for Pile Cap         Delivery of precast pile cap shell         Insatllation of pilecap and 1st pour for Pier 1L (Bridge ML-3-2)         Insatllation of pilecap and 1st pour for Pier 5H (Bridge S400-2)         Insatllation of pilecap and 1st pour for Pier 9H (Bridge CT-2)         Insatllation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insatllation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insatllation of pilecap and 1st pour for Pier 5E (Bridge S400-1)         Insatllation of pilecap and 1st pour for Pier 5F (Bridge S400-2)	7 7 7 151 25 26 26 26 26 26 26 26 26 26	6 6 6 121 6 26 26 26 26 26 26 26 26 19	19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 15-Aug-21 A 20-Sep-21 09-Oct-21 23-Oct-21 04-Nov-21 04-Dec-21 23-Nov-21 24-Aug-21 A	14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 06-Jan-22 13-Sep-21 22-Oct-21 09-Nov-21 22-Nov-21 03-Dec-21 06-Jan-22 22-Dec-21 30-Sep-21	95% 0% 0% 0% 0% 0% 0%			Piling Works for Pier 9H (Bridge CT)     Testing     Sonic Test, interface core and full core for bored pile     Delivery of precast pile cap shell
Piling Works Bored Pile Machi Piling Works for Testing SI-PW2180 Installation of Pred SI-PC1000 SI-PC1020 SI-PC1020 SI-PC1040 SI-PC1060 SI-PC1080 SI-PC1120 SI-PC1160 SI-PC1180	Pier 9H (Bridge CT)         Sonic Test, interface core and full core for bored pile         ast Pile Cap & 1st Pour for Pile Cap         Delivery of precast pile cap shell         Insattlation of pilecap and 1st pour for Pier 1L (Bridge ML-3-2)         Insattlation of pilecap and 1st pour for Pier 5H (Bridge S400-2)         Insattlation of pilecap and 1st pour for Pier 9H (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5E (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 9D (Bridge CT-1)         Insattlation of pilecap and 1st pour for Pier 9F (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 9F (Bridge CT-1)         Insattlation of pilecap and 1st pour for Pier 9F (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 9F (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 9F (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 9F (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 9F (Bridge CT-2)         Insattlation of Pilecap and 1st pour for Pier 9F (Bridge CT-2)	7           7           7           151           25           26	6 6 6 121 6 26 26 26 26 26 26 26 26 26 19 30 116	19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 15-Aug-21 A 20-Sep-21 09-Oct-21 23-Oct-21 04-Nov-21 04-Dec-21 23-Nov-21 24-Aug-21 A 24-Aug-21 A	14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 13-Sep-21 22-Oct-21 09-Nov-21 22-Nov-21 03-Dec-21 06-Jan-22 22-Dec-21 30-Sep-21 15-Oct-21 07-Jan-22	95% 0% 0% 0% 0% 0% 0% 40% 35%			Piling Works for Pier 9H (Bridge CT)     Testing     Sonic Test, interface core and full core for bored pile     Delivery of precast pile cap shell
Piling Works Bored Pile Machi Piling Works for Testing SI-PW2180 Installation of Pred SI-PC1000 SI-PC1020 SI-PC1020 SI-PC1040 SI-PC1060 SI-PC1080 SI-PC1120 SI-PC1120 SI-PC1180 Installation of Pred SI-PP1000	Pier 9H (Bridge CT)         Sonic Test, interface core and full core for bored pile         ast Pile Cap & 1st Pour for Pile Cap         Delivery of precast pile cap shell         Insattlation of pilecap and 1st pour for Pier 1L (Bridge ML-3-2)         Insattlation of pilecap and 1st pour for Pier 5H (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 9B (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5F (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 9D (Bridge CT-1)         Insattlation of pilecap and 1st pour for Pier 9D (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 9D (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 9D (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 9P (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 9F (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 9F (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 9F (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 9F (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 9F (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 9F (Bridge CT-2)	7           7           7           151           25           26           27           28           29           20           21           22           23           24           25           26           26           21           22           23           <	6 6 6 121 6 26 26 26 26 26 26 26 26 26 26 30 116 47	19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 15-Aug-21 A 20-Sep-21 09-Oct-21 23-Oct-21 04-Nov-21 04-Dec-21 23-Nov-21 24-Aug-21 A 24-Aug-21 A 14-Sep-21*	14-Sep-21           14-Sep-21           14-Sep-21           14-Sep-21           14-Sep-21           06-Jan-22           13-Sep-21           22-Oct-21           09-Nov-21           22-Nov-21           03-Dec-21           06-Jan-22           22-Dec-21           30-Sep-21           15-Oct-21           07-Jan-22           30-Oct-21	95% 0% 0% 0% 0% 0% 40% 35%			Piling Works for Pier 9H (Bridge CT)     Testing     Sonic Test, interface core and full core for bored pile     Delivery of precast pile cap shell
Piling Works Bored Pile Machi Piling Works for Testing S1-PW2180 Installation of Pred S1-PC1000 S1-PC1020 S1-PC1020 S1-PC1040 S1-PC1060 S1-PC1080 S1-PC1120 S1-PC1160 S1-PC1160 S1-PC1180 Installation of Pred S1-PP1000 S1-PP1005	Pier 9H (Bridge CT)         Sonic Test, interface core and full core for bored pile         ast Pile Cap & 1st Pour for Pile Cap         Delivery of precast pile cap shell         Insattlation of pilecap and 1st pour for Pier 1L (Bridge ML-3-2)         Insattlation of pilecap and 1st pour for Pier 5H (Bridge S400-2)         Insattlation of pilecap and 1st pour for Pier 9H (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5E (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5E (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5E (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5E (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 9D (Bridge CT-1)         Insattlation of pilecap and 1st pour for Pier 9F (Bridge S400-2)         Insattlation of pilecap and 1st pour for Pier 9F (Bridge CT-2)         ast Pier & 2nd Pour for Pier 9F (Bridge CT-2)         astPier & 2nd Pour for Pier 9F (Bridge CT-2)         Fabrication and delivery of precast pier for Pier 1L         Fabrication and delivery of precast pier for others	7           7           7           151           25           26           26           26           26           26           26           26           26           26           26           26           26           26           116           47           112	6 6 6 121 6 26 26 26 26 26 26 26 26 26 26 19 30 116 47 112	19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 15-Aug-21 A 20-Sep-21 09-Oct-21 23-Oct-21 04-Nov-21 04-Dec-21 23-Nov-21 24-Aug-21 A 24-Aug-21 A 14-Sep-21 14-Sep-21*	14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 06-Jan-22 13-Sep-21 22-Oct-21 09-Nov-21 22-Nov-21 03-Dec-21 06-Jan-22 22-Dec-21 30-Sep-21 15-Oct-21 07-Jan-22 07-Jan-22	95% 0% 0% 0% 0% 0% 40% 35%			Piling Works for Pier 9H (Bridge CT)     Testing     Sonic Test, interface core and full core for bored pile     Delivery of precast pile cap shell
Piling Works Bored Pile Machi Piling Works for Testing S1-PW2180 Installation of Pred S1-PC1000 S1-PC1010 S1-PC1020 S1-PC1040 S1-PC1060 S1-PC1080 S1-PC1080 S1-PC1180 Installation of Pred S1-PC1180 S1-PC1180 S1-PC1180 S1-PC1180 S1-PC1005 S1-PP1000	Pair 9H (Bridge CT)         Sonic Test, interface core and full core for bored pile         ast Pile Cap & 1st Pour for Pile Cap         Delivery of precast pile cap shell         Insattlation of pilecap and 1st pour for Pier 1L (Bridge ML-3-2)         Insattlation of pilecap and 1st pour for Pier 5H (Bridge S400-2)         Insattlation of pilecap and 1st pour for Pier 5H (Bridge S400-2)         Insattlation of pilecap and 1st pour for Pier 9H (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5E (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5E (Bridge CT-1)         Insattlation of pilecap and 1st pour for Pier 9D (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 9F (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 9D (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 9F (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 9F (Bridge CT-2)         ast Pier & 2nd Pour for Pile Cap         Fabrication and delivery of precast pier for Pier 1L         Fabrication and delivery of precast pier for others         Insattlation of precast pier and 2st pour for pile cap -1L         Insattlation of precast pier and 2st pour for pile cap -5H	7           7           7           7           151           25           26           26           26           26           26           26           26           26           26           26           26           26           26           26           116           16	6         6         6           6         6         6           121         6         26           26         26         26           26         26         26           26         26         26           26         26         19           30         116         47           112         16         16	19-Jun-21 A           19-Jun-21 A           19-Jun-21 A           19-Jun-21 A           19-Jun-21 A           15-Aug-21 A           20-Sep-21           09-Oct-21           23-Oct-21           04-Nov-21           04-Dec-21           23-Nov-21           24-Aug-21 A           14-Sep-21*           18-Sep-21*           01-Nov-21           10-Nov-21	14-Sep-21           14-Sep-21           14-Sep-21           14-Sep-21           14-Sep-21           14-Sep-21           06-Jan-22           13-Sep-21           22-Oct-21           09-Nov-21           22-Nov-21           03-Dec-21           06-Jan-22           22-Dec-21           30-Sep-21           15-Oct-21           07-Jan-22           18-Nov-21           27-Nov-21	95% 0% 0% 0% 0% 0% 40% 35% 0% 0%			Piling Works for Pier 9H (Bridge CT)     Testing     Sonic Test, interface core and full core for bored pile     Delivery of precast pile cap shell
Piling Works Bored Pile Machi Piling Works for Testing SI-PW2180 Installation of Pree SI-PC1000 SI-PC1020 SI-PC1020 SI-PC1040 SI-PC1080 SI-PC1080 SI-PC1160 SI-PC1160 SI-PC1180 Installation of Pree SI-PP1000 SI-PP1000 SI-PP1000 SI-PP1010 SI-PP1040	Par 9H (Bridge CT)         Sonic Test, interface core and full core for bored pile         ast Pile Cap & 1st Pour for Pile Cap         Delivery of precast pile cap shell         Insattlation of pilecap and 1st pour for Pier 1L (Bridge ML-3-2)         Insattlation of pilecap and 1st pour for Pier 5H (Bridge S400-2)         Insattlation of pilecap and 1st pour for Pier 9H (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5F (Bridge S400-2)         Insattlation of pilecap and 1st pour for Pier 5F (Bridge S400-2)         Insattlation of pilecap and 1st pour for Pier 9F (Bridge CT-2)         ast Pier & 2nd Pour for Pile Cap         Fabrication and delivery of precast pier for Pier 1L         Fabrication and delivery of precast pier for others         Insattlation of precast pier and 2st pour for pile cap -1L         Insattlation of precast pier and 2st pour for pile cap -9H	7           7           7           7           25           26           26           26           26           26           26           26           26           26           26           26           26           26           110           112           16           16           16	6         6         6           6         6         121         6           26         26         26         26         26         26         26         26         26         26         26         26         26         26         19         30         116         47         112         16	19-Jun-21 A           19-Jun-21 A           19-Jun-21 A           19-Jun-21 A           19-Jun-21 A           15-Aug-21 A           15-Aug-21 A           20-Sep-21           09-Oct-21           23-Oct-21           04-Nov-21           04-Dec-21           23-Nov-21           24-Aug-21 A           14-Sep-21*           18-Sep-21*           10-Nov-21           10-Nov-21           23-Nov-21	14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 06-Jan-22 13-Sep-21 22-Oct-21 09-Nov-21 22-Nov-21 03-Dec-21 06-Jan-22 22-Dec-21 30-Sep-21 15-Oct-21 07-Jan-22 30-Oct-21 07-Jan-22 18-Nov-21 27-Nov-21 10-Dec-21	95% 0% 0% 0% 0% 0% 40% 35% 0% 0% 0%			Piling Works for Pier 9H (Bridge CT)     Testing     Sonic Test, interface core and full core for bored pile     Delivery of precast pile cap shell
Piling Works Bored Pile Machi Piling Works for Testing S1-PW2180 Installation of Pred S1-PC1000 S1-PC1020 S1-PC1040 S1-PC1040 S1-PC1080 S1-PC1080 S1-PC1120 S1-PC1120 S1-PC1180 Installation of Pred S1-PP1000 S1-PP1000 S1-PP1010 S1-PP1040 S1-PP1060	Par 9H (Bridge CT)         Sonic Test, interface core and full core for bored pile         ast Pile Cap & 1st Pour for Pile Cap         Delivery of precast pile cap shell         Insattlation of pilecap and 1st pour for Pier 1L (Bridge ML-3-2)         Insattlation of pilecap and 1st pour for Pier 5H (Bridge S400-2)         Insattlation of pilecap and 1st pour for Pier 9H (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5B (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5B (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5B (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5B (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5B (Bridge S400-2)         Insattlation of pilecap and 1st pour for Pier 5F (Bridge S400-2)         Insattlation of pilecap and 1st pour for Pier 9P (Bridge CT-2)         ast Pier & 2nd Pour for Pile Cap         Fabrication and delivery of precast pier for Pier 1L         Fabrication and delivery of precast pier for Pier 1L         Fabrication and delivery of precast pier for others         Insattlation of precast pier and 2st pour for pile cap -1L         Insattlation of precast pier and 2st pour for pile cap -9H         Insattlation of precast pier and 2st pour for pile cap -9H         Insattlation of precast pier and 2st pour	7           7           7           7           151           25           26           26           26           26           26           26           26           26           26           26           26           26           112           16           16           16           16	6         6           6         6           6         6           26         26           26         26           26         26           26         26           26         30           116         47           112         16           16         16           16         16	19-Jun-21 A           19-Jun-21 A           19-Jun-21 A           19-Jun-21 A           19-Jun-21 A           15-Aug-21 A           20-Sep-21           09-Oct-21           23-Oct-21           04-Nov-21           04-Dec-21           23-Nov-21           24-Aug-21 A           24-Aug-21 A           18-Sep-21*           18-Sep-21*           10-Nov-21           23-Nov-21           04-Dec-21	14-Sep-21           14-Sep-21           14-Sep-21           14-Sep-21           14-Sep-21           14-Sep-21           14-Sep-21           13-Sep-21           22-Oct-21           09-Nov-21           22-Nov-21           03-Dec-21           06-Jan-22           22-Dec-21           30-Sep-21           15-Oct-21           07-Jan-22           18-Nov-21           27-Nov-21           10-Dec-21           22-Dec-21	95% 0% 0% 0% 0% 0% 40% 35% 0% 0% 0% 0%			Piling Works for Pier 9H (Bridge CT)     Testing     Sonic Test, interface core and full core for bored pile
Piling Works Bored Pile Machi Piling Works for Testing SI-PW2180 Installation of Pred SI-PC1000 SI-PC1020 SI-PC1020 SI-PC1040 SI-PC1060 SI-PC1160 SI-PC1180 Installation of Pred SI-PP1000 SI-PP1000 SI-PP1000 SI-PP1010 SI-PP1040 SI-PP1060 SI-PP1160	Par 9H (Bridge CT)         Sonic Test, interface core and full core for bored pile         ast Pile Cap & 1st Pour for Pile Cap         Delivery of precast pile cap shell         Insatllation of pilecap and 1st pour for Pier 1L (Bridge ML-3-2)         Insatllation of pilecap and 1st pour for Pier 5H (Bridge S400-2)         Insatllation of pilecap and 1st pour for Pier 5H (Bridge CT-2)         Insatllation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insatllation of pilecap and 1st pour for Pier 5E (Bridge S400-1)         Insatllation of pilecap and 1st pour for Pier 5E (Bridge S400-1)         Insatllation of pilecap and 1st pour for Pier 5E (Bridge S400-1)         Insatllation of pilecap and 1st pour for Pier 5F (Bridge CT-1)         Insatllation of pilecap and 1st pour for Pier 9F (Bridge CT-2)         ast Pier & 2nd Pour for Pile Cap         Fabrication and delivery of precast pier for Others         Insatllation of pilecap and 1st pour for Pier 9E (Bridge CT-2)         ast Pier & 2nd Pour for Pile Cap         Fabrication and delivery of precast pier for Others         Insatllation of piecast pier and 2st pour for pile cap -1L         Insatllation of precast pier and 2st pour for pile cap -5H         Insatllation of precast pier and 2st pour for pile cap -5D         Insatllation of precast pier and 2st pour for pile cap -5F	7           7           7           7           151           25           26           26           26           26           26           26           26           26           26           26           26           26           110           16           16           16           16           16           16           16           16           16	6         6           6         6           6         6           26         26           26         26           26         26           26         26           26         19           30         116           47         112           16         16           16         16           16         16           16         16           16         16	19-Jun-21 A           19-Jun-21 A           19-Jun-21 A           19-Jun-21 A           19-Jun-21 A           15-Aug-21 A           20-Sep-21           09-Oct-21           23-Oct-21           04-Nov-21           04-Dec-21           23-Nov-21           24-Aug-21 A           14-Sep-21*           18-Sep-21*           10-Nov-21           10-Nov-21	14-Sep-21           14-Sep-21           14-Sep-21           14-Sep-21           14-Sep-21           14-Sep-21           06-Jan-22           13-Sep-21           22-Oct-21           09-Nov-21           22-Nov-21           03-Dec-21           06-Jan-22           22-Dec-21           30-Sep-21           15-Oct-21           07-Jan-22           18-Nov-21           27-Nov-21           10-Dec-21           22-Dec-21	95% 0% 0% 0% 0% 0% 40% 35% 0% 0% 0% 0%			Piling Works for Pier 9H (Bridge CT)     Testing     Sonic Test, interface core and full core for bored pile     Delivery of precast pile cap shell
Piling Works Bored Pile Machi Piling Works for Testing SI-PC1000 SI-PC1010 SI-PC1020 SI-PC1040 SI-PC1080 SI-PP1000 SI-PP1000 SI-PP1000 SI-PP1000 SI-PP1000 SI-PP1040 SI-PP1040 SI-PP1060 SI-PP1180	Par 9H (Bridge CT)         Sonic Test, interface core and full core for bored pile         ast Pile Cap & 1st Pour for Pile Cap         Delivery of precast pile cap shell         Insatllation of pilecap and 1st pour for Pier 1L (Bridge ML-3-2)         Insatllation of pilecap and 1st pour for Pier 5H (Bridge S400-2)         Insatllation of pilecap and 1st pour for Pier 5D (Bridge CT-2)         Insatllation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insatllation of pilecap and 1st pour for Pier 5D (Bridge CT-1)         Insatllation of pilecap and 1st pour for Pier 5F (Bridge S400-1)         Insatllation of pilecap and 1st pour for Pier 5F (Bridge S400-1)         Insatllation of pilecap and 1st pour for Pier 5F (Bridge S400-2)         Insatllation of pilecap and 1st pour for Pier 5F (Bridge S400-2)         Insatllation of pilecap and 1st pour for Pier 5F (Bridge CT-1)         Insatllation of pilecap and 1st pour for Pier 9F (Bridge CT-2)         ast Pier & 2nd Pour for Pile Cap         Fabrication and delivery of precast pier for others         Insatllation of precast pier and 2st pour for pile cap -1L         Insatllation of precast pier and 2st pour for pile cap -5H         Insatllation of precast pier and 2st pour for pile cap -5D         Insatllation of precast pier and 2st pour for pile cap -5F         Insatllation of precast pier and 2st pour for pile cap -5F         Insatllation of precast pier and	7           7           7           7           151           25           26           26           26           26           26           26           26           26           26           26           26           26           112           16           16           16           16           16           16           16           16	6         6           6         6           6         6           26         26           26         26           26         26           26         26           26         26           26         19           30         116           47         112           16         16           16         16           16         16           16         16           16         16	19-Jun-21 A           19-Jun-21 A           19-Jun-21 A           19-Jun-21 A           19-Jun-21 A           15-Aug-21 A           20-Sep-21           09-Oct-21           23-Oct-21           04-Nov-21           04-Nov-21           24-Aug-21 A           24-Aug-21 A           14-Sep-21*           18-Sep-21*           10-Nov-21           23-Nov-21           24-Aug-21 A           24-Aug-21 A           24-Aug-21 A           24-Aug-21 A           14-Sep-21*           18-Sep-21*           01-Nov-21           23-Nov-21           24-Nov-21           24-Nov-21           25-Nov-21           26-Nov-21	14-Sep-21           14-Sep-21           14-Sep-21           14-Sep-21           14-Sep-21           14-Sep-21           14-Sep-21           06-Jan-22           13-Sep-21           22-Oct-21           09-Nov-21           22-Nov-21           03-Dec-21           06-Jan-22           22-Dec-21           30-Sep-21           15-Oct-21           07-Jan-22           18-Nov-21           27-Nov-21           10-Dec-21           22-Dec-21           07-Dec-21	95% 0% 0% 0% 0% 0% 40% 35% 0% 0% 0% 0%			Piling Works for Pier 9H (Bridge CT)     Testing     Sonic Test, interface core and full core for bored pile     Delivery of precast pile cap shell
Piling Works Bored Pile Machi Piling Works for Testing S1-PW2180 S1-PC1000 S1-PC1000 S1-PC1020 S1-PC1040 S1-PC1060 S1-PC1080 S1-PC1080 S1-PC1120 S1-PC1180 Installation of Pred S1-PP1000 S1-PP1000 S1-PP1000 S1-PP1040 S1-PP1040 S1-PP1060 S1-PP1160 S1-PP1180 Stage 1 - Erection	Par 9H (Bridge CT)         Sonic Test, interface core and full core for bored pile         ast Pile Cap & 1st Pour for Pile Cap         Delivery of precast pile cap shell         Insatllation of pilecap and 1st pour for Pier 1L (Bridge ML-3-2)         Insatllation of pilecap and 1st pour for Pier 5H (Bridge S400-2)         Insatllation of pilecap and 1st pour for Pier 5H (Bridge CT-2)         Insatllation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insatllation of pilecap and 1st pour for Pier 5E (Bridge S400-1)         Insatllation of pilecap and 1st pour for Pier 5E (Bridge S400-1)         Insatllation of pilecap and 1st pour for Pier 5E (Bridge S400-1)         Insatllation of pilecap and 1st pour for Pier 5F (Bridge CT-1)         Insatllation of pilecap and 1st pour for Pier 9F (Bridge CT-2)         ast Pier & 2nd Pour for Pile Cap         Fabrication and delivery of precast pier for Others         Insatllation of pilecap and 1st pour for Pier 9E (Bridge CT-2)         ast Pier & 2nd Pour for Pile Cap         Fabrication and delivery of precast pier for Others         Insatllation of piecast pier and 2st pour for pile cap -1L         Insatllation of precast pier and 2st pour for pile cap -5H         Insatllation of precast pier and 2st pour for pile cap -5D         Insatllation of precast pier and 2st pour for pile cap -5F	7           7           7           7           151           25           26           26           26           26           26           26           26           26           26           26           26           26           110           16           16           16           16           16           16           16           16           16	6         6           6         6           6         6           26         26           26         26           26         26           26         26           26         19           30         116           47         112           16         16           16         16           16         16           16         16           16         16	19-Jun-21 A           19-Jun-21 A           19-Jun-21 A           19-Jun-21 A           19-Jun-21 A           15-Aug-21 A           20-Sep-21           09-Oct-21           23-Oct-21           04-Nov-21           04-Dec-21           23-Nov-21           24-Aug-21 A           14-Sep-21*           18-Sep-21*           10-Nov-21           10-Nov-21	14-Sep-21           14-Sep-21           14-Sep-21           14-Sep-21           14-Sep-21           14-Sep-21           06-Jan-22           13-Sep-21           22-Oct-21           09-Nov-21           22-Nov-21           03-Dec-21           06-Jan-22           22-Dec-21           30-Sep-21           15-Oct-21           07-Jan-22           18-Nov-21           27-Nov-21           10-Dec-21           22-Dec-21	95% 0% 0% 0% 0% 0% 40% 35% 0% 0% 0% 0%			Piling Works for Pier 9H (Bridge CT)     Testing     Sonic Test, interface core and full core for bored pile     Delivery of precast pile cap shell
Piling Works Bored Pile Machi Piling Works for Testing S1-PW2180 Installation of Pree S1-PC1000 S1-PC1020 S1-PC1020 S1-PC1080 S1-PC1080 S1-PC1180 Installation of Pree S1-PP1000 S1-PP1000 S1-PP1000 S1-PP1000 S1-PP1040 S1-PP1040 S1-PP1060 S1-PP1180 Stage 1 - Erection	Par 9H (Bridge CT)         Sonic Test, interface core and full core for bored pile         ast Pile Cap & 1st Pour for Pile Cap         Delivery of precast pile cap shell         Insattlation of pilecap and 1st pour for Pier 1L (Bridge ML-3-2)         Insattlation of pilecap and 1st pour for Pier 5H (Bridge S400-2)         Insattlation of pilecap and 1st pour for Pier 9H (Bridge CT-2)         Insattlation of pilecap and 1st pour for Pier 5D (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5E (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5E (Bridge S400-1)         Insattlation of pilecap and 1st pour for Pier 5E (Bridge S400-2)         Insattlation of pilecap and 1st pour for Pier 5E (Bridge S400-2)         Insattlation of pilecap and 1st pour for Pier 5F (Bridge CT-1)         Insattlation of pilecap and 1st pour for Pier 9F (Bridge CT-2)         ast Pier & 2nd Pour for Pile Cap         Fabrication and delivery of precast pier for Oters         Insattlation of pilecap and 1st pour for Pier 9F (Bridge CT-2)         ast Pier & 2nd Pour for Pile Cap         Fabrication and delivery of precast pier for others         Insattlation of precast pier and 2st pour for pile cap -1L         Insattlation of precast pier and 2st pour for pile cap -5H         Insattlation of precast pier and 2st pour for pile cap -5D         Insattlation of precast pier and 2st pour for pile cap -5F	7           7           7           7           151           25           26           26           26           26           26           26           26           26           26           26           26           26           112           16           16           16           16           16           16           16           16           16           16           16           16           16           16           16           16	6         6           6         6           121         6           26         26           26         26           26         26           26         26           26         26           26         19           30         116           47         112           16         16           16         16           16         16           16         16           16         16           16         16           16         16           16         16           16         16           16         16	19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 19-Jun-21 A 15-Aug-21 A 20-Sep-21 09-Oct-21 23-Oct-21 04-Nov-21 04-Dec-21 23-Nov-21 24-Aug-21 A 24-Aug-21 A 14-Sep-21* 18-Sep-21* 18-Sep-21* 01-Nov-21 23-Nov-21 04-Dec-21 19-Nov-21 23-Nov-21 24-Jul-21 A	14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 14-Sep-21 06-Jan-22 13-Sep-21 22-Oct-21 09-Nov-21 22-Nov-21 03-Dec-21 06-Jan-22 22-Dec-21 30-Sep-21 15-Oct-21 07-Jan-22 30-Oct-21 07-Jan-22 18-Nov-21 10-Dec-21 22-Dec-21 07-Dec-21 14-Dec-21 09-Dec-21	95% 0% 0% 0% 0% 0% 40% 35% 0% 0% 0% 0%			Piling Works for Pier 9H (Bridge CT)     Testing     Sonic Test, interface core and full core for bored pile     Delivery of precast pile cap shell

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tion a	nd T&C	of the TCSS	5					
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tion a	nd T&C	of the TCSS	3					
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7 1	TD A)						<ul> <li>Contr</li> </ul>	actor's Design
/ days	TRA)	•					Desig	m of cycle rack
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			Fabricat	tion and Pre-	stressing of seg	nents for	5EU1-	12,9EU1-12,1F
							Fabric	cation and Pre-
rication	n of segr	nent for pier	head at 5D, 9	9D, 5E, 9E,5	F, 9F, 5H, 9H &	t 1L (tota	il 18nos)	) (incl. 3 days T
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satllati	on of pil	¢cap and 1st	t pour for Pier	1L (Bridge ]	ML-3-2)			
		<u>.</u>	Insatl	lation of pile	cap and 1st pou	r for Pier	5H (Br	idge S400-2)
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		_					Ir	nsatllation of pi
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	e S400-2	-	9F (Bridge C	T-2)				
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		Fabrication a	nd delivery of	f precast pier	for Pier 1L			
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				I	Segn	nent erec	tion betv	ween Pier 1L-N
		:						
	21.40		evision	)	Check	ed	Ар	proved
	SIVIR	- (Sep 2	1 - Dec 21	)				

## Data Date :08-Sep-21 Sheet 2of 5

	ActivityName	Original Duration	Remaining Durate	on Start	Finish	Physical %		September 2021	October 2021
S1-EB1080	Segment erection between Pier 1L-N and Pier 1K - Stage 1-2	5	5	24-Nov-21	28-Nov-21	Complete 0%	22 29	05 12 19 26	03 10 17
S1-EB1090	Segment erection between Pier 1L-S and Pier W5 - Stage 1-3	5	5	29-Nov-21	03-Dec-21	0%			
S1-EB1100	Segment erection between Pier 1L-S and Pier 1K - Stage 1-4	5	5	05-Dec-21	09-Dec-21	0%			
ching Work, TCSS	S, Duct and Handover Works	63	63	10-Dec-21	28-Feb-22				
-SW1000	Stitching works, laying of TCSS duct and handover to TCSS Contractor for Bridge ML	63	63	10-Dec-21	28-Feb-22	0%			
	(Works Available for Piles 5B,9B,5C,9C,5G,9G,2K) or Piers 5B, 9B, 5C,9C, 5G,9G	326 326	190 190	20-May-21 A 20-May-21 A	16-Mar-22 16-Mar-22				
ge 2 - Erection of	FBridge Segments	256	150	20-May-21 A	16-Mar-22				
	egments for Bridge S400 and Bridge CT Fabrication and Delivery for Stage 2 Bridge Segment Erection (16 Sets of Segments)	256 256	150 150	20-May-21 A 20-May-21 A	16-Mar-22 16-Mar-22	25%			
S1-EB2002	Segment erection between Pier 5H and Pier W5 - Stage 2-1	5	5	10-Dec-21	14-Dec-21	0%			
ling Works (For Pie Bored Pile Machine	er 5B, 9B, 5C, 9C, 5G, 9G)	92 74	62 56	01-Aug-21 A 01-Aug-21 A	08-Nov-21 02-Nov-21				
Piling Works for Pier		39 2	39 2	25-Sep-21	02-Nov-21	0%		Pilin	g platform installation
S1-P W 5100 Pile 5B1	r ing piauonn insanauon	11	11	25-Sep-21	27-Sep-21	076			▼ Pile 5B1
	Drive Casing & excavate to founding level	9	9	28-Sep-21	08-Oct-21	0%			Drive Casing & excava
S1-PW3220	Install steel cage and concreting	2	2	09-Oct-21	11-Oct-21	0%			Install steel cage
Pile 5B2 S1-PW3240	Drive Casing & excavate to founding level	<u>11</u> 9	11 9	12-Oct-21 12-Oct-21	25-Oct-21 22-Oct-21	0%			
	Install steel cage and concreting	2	2	23-Oct-21	25-Oct-21	0%			
Testing		7	7	26-Oct-21	02-Nov-21				
	Sonic Test, interface core and full core for bored pile	7	7	26-Oct-21	02-Nov-21	0%			Diling Wedge for Disc 50 (Doi:1 - 0
Piling Works for Pier S1-PW3000	(5C (Bridge \$400) Piling platform installation (NCE163 - Disruption of Works at TKOI from 9 Aug 21 to 13 Aug 2021 by Contractor "C6")	43 22	25 0	01-Aug-21 A 01-Aug-21 A	02-Oct-21 31-Aug-21 A	100%	Piling platfor	m installation (NCE163 - Disruption of Works	<ul> <li>Piling Works for Pier 5C (Bridge S at TKOI from 9 Aug 21 to 13 Aug 2021</li> </ul>
Pile 5C2 S1-PW3020	Drive Casing & excavate to founding level	10	42	01-Sep-21 A 01-Sep-21 A	11-Sep-21 09-Sep-21	70%		<ul> <li>Pile 5C2</li> <li>Drive Casing &amp; excavate to founding level</li> </ul>	1
	Install steel cage and concreting	2	2	10-Sep-21 A	11-Sep-21	0%		<ul> <li>Install steel cage and concreting</li> </ul>	
Pile 5C1		10	10	13-Sen-21	24-Sep-21	0,0		Pile 5C1	
S1-PW3080	Drive Casing & excavate to founding level	8	8	13-Sep-21	21-Sep-21	0%		, i i i i i i i i i i i i i i i i i i i	xcavate to founding level
S1-PW3120	Install steel cage and concreting	2	2	23-Sep-21	24-Sep-21	0%		Install steel	cage and concreting
Testing S1-PW3140	Sonic Test, interface core and full core for bored pile	7	7 7	25-Sep-21 25-Sep-21	02-Oct-21 02-Oct-21	0%			Testing Sonic Test, interface core and full
Bored Pile Machine		86	56	01-Aug-21 A	02-Nov-21				
Piling Works for Pier S1-PW3640	Piling platform installation	39 2	39 2	25-Sep-21 25-Sep-21	02-Nov-21 27-Sep-21	0%		Pilin	g platform installation
Pile9B1	Drive Casing & Grab to excavate the soil	<u>11</u> 9	11 9	28-Sep-21 28-Sep-21	11-Oct-21 08-Oct-21	0%			Pile 9B1 Drive Casing & Grab
	Install steel cage and concreting	2	2	09-Oct-21	11-Oct-21	0%			Install steel cag
Pile 9B2	nisan seer eige und eenetening	- 11	- 11	12-Oct-21	25-Oct-21	070			
S1-PW3720	Drive Casing & Grab to excavate the soil	9	9	12-Oct-21	22-Oct-21	0%			
S1-PW3760	Install steel cage and concreting	2	2	23-Oct-21	25-Oct-21	0%			
Testing S1-PW3780	Sonic Test, interface core and full core for bored pile	7	7 7	26-Oct-21 26-Oct-21	02-Nov-21 02-Nov-21	0%			
Piling Works for Pier		55	25	01-Aug-21 A	02-Oct-21	1000/	Dilino platfor	n installation (NCE163 - Disruption of Works	Piling Works for Pier 9C (Bridge C the TKOL from 0 Aug 21 to 12 Aug 2021
S1-PW3480 Pile9C2	Piling platform installation (NCE163 - Disruption of Works at TKOI from 9 Aug 21 to 13 Aug 2021 by Contractor "C6")	22	0	01-Aug-21 A	31-Aug-21 A	100%	Philing plation		
	Drive Casing & Grab to excavate the soil	8	2	01-Sep-21 A 01-Sep-21 A	11-Sen-21 09-Sep-21	70%		<ul> <li>Pile 9C2</li> <li>Drive Casing &amp; Grab to excavate the soil</li> </ul>	
S1-PW3540	Install steel cage and concreting	2	2	10-Sep-21	11-Sep-21	0%		<ul> <li>Install steel cage and concreting</li> </ul>	
Pile9C1 S1-PW3560	Drive Casing & Grab to excavate the soil	10 8	10 8	13-Sep-21 13-Sep-21	24-Sep-21 21-Sep-21	0%		Pile 9C1 Drive Casing & C	Grab to excavate the soil
	Install steel cage and concreting	2	2	23-Sep-21	24-Sep-21	0%			cage and concreting
Testing		7	7	25-Sen-21	02-Oct-21			· · · · · · · · · · · · · · · · · · ·	Testing
	Sonic Test, interface core and full core for bored pile	7	7	25-Sep-21	02-Oct-21	0%			Sonic Test, interface core and full
Bored Pile Machine	5G (Bridge S400)	43 43	43 43	27-Sep-21 27-Sep-21	08-Nov-21 08-Nov-21 20.5 m 21			×	Piling platform installation
S1-PW3320	Piling platform installation	4	4	27-Sep-21*	30-Sep-21	0%			Piling platform installation
	Drive Casing & Grab to excavate the soil	12 10	12 10	02-Oct-21 02-Oct-21	16-Oct-21 13-Oct-21	0%			Drive Casin
S1-PW3380	Install steel cage and concreting	2	2	15-Oct-21	16-Oct-21	0%			Instal
Pile 5G2 S1-PW3400	Drive Casing & Grab to excavate the soil	12 10	12 10	18-Oct-21 18-Oct-21	30-Oct-21 28-Oct-21	0%			=

24	November 2021 31 07 14	21	December 2021 28 05 2
l			gment erection between
			Segment erection
			Seg
	Piling Works (For Pie	er 5B, 9B, 5C, 9C, 5G	, 9G)
	<ul> <li>Bored Pile Machine 1</li> <li>Piling Works for Pier 5B (Bridge</li> </ul>	S400)	
unding level			
ncreting			
➡ Pile 5B2 rive Casing & e	xcavate to founding level		
Install steel	cage and concreting		
	<ul> <li>Testing</li> <li>Sonic Test, interface core and full</li> </ul>	core for bored pile	
	, ,	1	
tractor "C6")			
bored pile			
oored pile	Bored Pile Machine 2		
	<ul> <li>Piling Works for Pier 9B (Bridge</li> </ul>	CT)	
ate the soil			
reting			
	Grab to excavate the soil		
Install steel	cage and concreting		
	<ul> <li>Testing</li> <li>Sonic Test, interface core and full</li> </ul>	core for bored pile	
tractor "C6")			
bored pile			
	Bored Pile Machine     Piling Works for Pier	3 5G (Bridge S400)	
b to excavate th	e soil		
ge and concretin	ng		
	ile 5G2 Casing & Grab to excavate the soil		
			<u>:</u>
	Revision	Checked	Approved
3MRF	P(Sep 21 - Dec 21)		

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et 301 3	AchulyName	Original Durator	Remaining Duration	n Start	Finish	Physical % Complete 22		September 2021	October 20
S1-PW3440	Install steel cage and concreting	2	2	29-Oct-21	30-Oct-21	0%	29	05 12 19 26	03 10
Testing	Sonic Test, interface core and full core for bored pile	7	7	01-Nov-21 01-Nov-21	08-Nov-21 08-Nov-21	0%			
Bored Pile Machine	•					076			
Piling Works for Pier	er 9G (Bridge CT)	40 40	40 40	27-Sep-21 27-Sep-21	05-Nov-21 05-Nov-21				in the second second
	Piling platform installation	2	2	27-Sep-21*	28-Sep-21	0%		Pi	ling platform installation
Pile9G1 S1-PW3820	Drive Casing & Grab to excavate the soil	12 10	12 10	29-Sep-21 29-Sep-21	13-Oct-21 11-Oct-21	0%			Vile 90 Drive Cas
S1-PW3860	Install steel cage and concreting	2	2	12-Oct-21	13-Oct-21	0%			Install
Pile 9G2		12	12	15-Oct-21	28-Oct-21				-
	Drive Casing & Grab to excavate the soil	10	10	15-Oct-21	26-Oct-21	0%			
	Install steel cage and concreting	2	2	27-Oct-21	28-Oct-21	0%			
S1-PW3940	Sonic Test, interface core and full core for bored pile	7	7	29-Oct-21 29-Oct-21	05-Nov-21 05-Nov-21	0%			
	ast Pier & 2nd Pour for Pile Cap	99	99	30-Sep-21	06-Jan-22			•	
S1-PP2000	Fabrication and delivery of precast pier	99	99	30-Sep-21*	06-Jan-22	0%		· · · · · · · · · · · · · · · · · · ·	
S1-PP2005	Insatllation of precast pier and 2st pour for pile cap -5B	16	16	03-Dec-21	21-Dec-21	0%			
Installation of Preca S1-PC2000	ast Pile Cap & 1st Pour for Pile Cap Delivery of precast pile cap shell	<b>74</b> 5	115 6	15-Aug-21 A 15-Aug-21 A	31-Dec-21 13-Sep-21	80%		Delivery of precast pile cap shell	
S1-PC2000	Insatlation of pilecap and 1st pour for Pier 5B (Bridge S400-1)	26	26	03-Nov-21	02-Dec-21	0%			
S1-PC2002 S1-PC2005		26	20	17-Nov-21	16-Dec-21	0%			
	Insatllation of pilecap and 1st pour for Pier 9B (Bridge CT-1)								
S1-PC2020	Insatllation of pilecap and 1st pour for Pier 5C (Bridge 400-1)	26	26	30-Nov-21	31-Dec-21	0%			
	er 2K (Bridge S200-3)	2		10-Dec-21 10-Dec-21	11-Dec-21 11-Dec-21				<u>.</u>
S1-PW5000	Piling platform installation	2	2	10-Dec-21	11-Dec-21	0%			
Pre-drilling Works (5		5	0	25-Aug-21 A	01-Sep-21 A			g Works (5B & 9B) g Works for Pier 5B	
Pre-drilling Works for S1-PD3060	Pre-drilling Works for 5B2	5	0	25-Aug-21 A 25-Aug-21 A	01-Sep-21 A 01-Sep-21 A	100%		g Works for 5B2	
ction 2 of Works-	All Works within Portion II,III,IV and VI	322	119	03-Sep-20 A	31-Jan-22				
CBL Main Bridge ar		322	119	03-Sep-20 A	31-Jan-22				
Concrete Bridge Construction of Stit	tching and Tansion	322	119 103	03-Sep-20 A 03-Jul-21 A	31-Jan-22 12-Jan-22				
Construction of Tra	ansverse Stitching	89	10	03-Jul-21 A	18-Sep-21			Construction of Transv	
	Construction of transverse stitch at W4 (NCE No.162 & inclement weather on 4 Aug 21 - 7 Aug 21)	48	10	03-Jul-21 A	18-Sep-21	70%			erse stitch at W4 (NCE No.162 & i
S2-CB3045	Construction of transverse stitch at SE7 (inclement weather on 4 Aug 21 - 7 Aug 21)	48	0	31-Jul-21 A	04-Sep-21 A	100%	Con	struction of transverse stitch at SE7 (inclement	
S2-CB3050	Construction of transverse stitch at E4 (NCE No.162 & inclement weather on 4 Aug 21 - 7 Aug 21)	48	10	22-Jul-21 A	18-Sep-21	75%		Construction of transve	erse stitch at E4 (NCE No.162 & in
	Tansverse Tension Top and transverse tension at SW3	41	36 9	02-Sep-21 A 08-Sep-21	22-Oct-21 17-Sep-21	0%	-	Top and transverse tension	on at SW3
S2-CB3105	Top and transverse tension at NW3	9	0	02-Sep-21 A	07-Sep-21 A	100%		Top and transverse tension at NW3	
S2-CB3120	Top and transverse tension at NW4	9	9	30-Sep-21	11-Oct-21	0%		1	Top and tr
S2-CB3125	Top and transverse tension at SW4	9	9	12-Oct-21	22-Oct-21	0%			1
S2-CB3123	Top and transverse tension at NE4	9	9		11-Oct-21	0%			Top and tr
	•			30-Sep-21					Top and tr
S2-CB3145	Top and transverse tension at SE4	9	9	30-Sep-21	11-Oct-21	0%		Top and transport top	
S2-CB3160	Top and transverse tension at SE7	9	9	09-Sep-21	18-Sep-21	0%		Top and transverse ten	sion at SE7
Bottom Tension and S2-CB3230	bottom tension and external tension for SE5-6	113 18	93 0	10-Aug-21 A 10-Aug-21 A	12-Jan-22 01-Sep-21 A	100%	Bottom ter	nsion and external tension for SE5-6	
	Bottom tension and external tension for NW4-3	27	27	23-Oct-21	23-Nov-21	0%			
S2-CB3245		27	27	30-Oct-21	30-Nov-21	0%			
S2-CB3245 S2-CB3250	Bottom tension and external tension for SW4-3	27							
	Bottom tension and external tension for SW4-3 Bottom tension and external tension for NE4-5	27	27	12-Oct-21	12-Nov-21	0%		1	
S2-CB3250 S2-CB3260		27				0%			
S2-CB3250 S2-CB3260 S2-CB3265	Bottom tension and external tension for NE4-5 Bottom tension and external tension for SE4-5	27 27	27	25-Oct-21	24-Nov-21	0%			
S2-CB3250 S2-CB3260 S2-CB3265 S2-CB3267	Bottom tension and external tension for NE4-5 Bottom tension and external tension for SE4-5 Bottom tension and external tension for SE3-4	27 27 27 27	27 27	25-Oct-21 30-Oct-21	24-Nov-21 30-Nov-21	0%			
S2-CB3250 S2-CB3260 S2-CB3265 S2-CB3267 S2-CB3270	Bottom tension and external tension for NE4-5 Bottom tension and external tension for SE4-5 Bottom tension and external tension for SE3-4 Bottom tension and external tension for SE6-7	27 27 27 27 27	27 27 27 27	25-Oct-21 30-Oct-21 20-Sep-21	24-Nov-21 30-Nov-21 23-Oct-21	0%			
S2-CB3250 S2-CB3260 S2-CB3265 S2-CB3267 S2-CB3270 S2-CB3280	Bottom tension and external tension for NE4-5         Bottom tension and external tension for SE4-5         Bottom tension and external tension for SE3-4         Bottom tension and external tension for SE6-7         Bottom tension and external tension for SE7-A	27 27 27 27 27 27 27	27 27 27 27 27	25-Oct-21 30-Oct-21 20-Sep-21 29-Sep-21	24-Nov-21 30-Nov-21 23-Oct-21 01-Nov-21	0% 0% 0% 0%			
S2-CB3250 S2-CB3260 S2-CB3265 S2-CB3267 S2-CB3270 S2-CB3280 S2-CB3320	Bottom tension and external tension for NE4-5         Bottom tension and external tension for SE4-5         Bottom tension and external tension for SE3-4         Bottom tension and external tension for SE6-7         Bottom tension and external tension for SE7-A         Bottom tension and external tension for NE3-4	27 27 27 27 27 27 27 27 27	27 27 27 27 27 27 27	25-Oct-21 30-Oct-21 20-Sep-21 29-Sep-21 06-Nov-21	24-Nov-21 30-Nov-21 23-Oct-21 01-Nov-21 07-Dec-21	0% 0% 0% 0%			
S2-CB3250 S2-CB3260 S2-CB3265 S2-CB3267 S2-CB3270 S2-CB3280 S2-CB3320 S2-CB3340	Bottom tension and external tension for NE4-5         Bottom tension and external tension for SE4-5         Bottom tension and external tension for SE3-4         Bottom tension and external tension for SE6-7         Bottom tension and external tension for SE7-A         Bottom tension and external tension for NE3-4         Bottom tension and external tension for NE3-4         Bottom tension and external tension for NE3-4	27 27 27 27 27 27 27 27 27 27	27 27 27 27 27 27 27 27	25-Oct-21 30-Oct-21 20-Sep-21 29-Sep-21 06-Nov-21 09-Dec-21	24-Nov-21 30-Nov-21 23-Oct-21 01-Nov-21 07-Dec-21 12-Jan-22	0% 0% 0% 0%			
S2-CB3250 S2-CB3260 S2-CB3265 S2-CB3267 S2-CB3270 S2-CB3280 S2-CB3320 S2-CB3340 S2-CB3360	Bottom tension and external tension for NE4-5         Bottom tension and external tension for SE4-5         Bottom tension and external tension for SE3-4         Bottom tension and external tension for SE6-7         Bottom tension and external tension for SE7-A         Bottom tension and external tension for NE3-4         Bottom tension and external tension for NE2-3         Bottom tension and external tension for SE2-3	27 27 27 27 27 27 27 27 27 27 27	27 27 27 27 27 27 27 27 27 27	25-Oct-21 30-Oct-21 20-Sep-21 29-Sep-21 06-Nov-21 09-Dec-21 09-Dec-21	24-Nov-21 30-Nov-21 23-Oct-21 01-Nov-21 07-Dec-21 12-Jan-22 12-Jan-22	0% 0% 0% 0%			
S2-CB3250 S2-CB3260 S2-CB3265 S2-CB3267 S2-CB3270 S2-CB3270 S2-CB3320 S2-CB3340 S2-CB3340 S2-CB3360 Construction of Lon	Bottom tension and external tension for NE4-5         Bottom tension and external tension for SE4-5         Bottom tension and external tension for SE3-4         Bottom tension and external tension for SE6-7         Bottom tension and external tension for SE7-A         Bottom tension and external tension for NE3-4         Bottom tension and external tension for NE2-3         Bottom tension and external tension for SE2-3	27 27 27 27 27 27 27 27 27 27	27 27 27 27 27 27 27 27	25-Oct-21 30-Oct-21 20-Sep-21 29-Sep-21 06-Nov-21 09-Dec-21	24-Nov-21 30-Nov-21 23-Oct-21 01-Nov-21 07-Dec-21 12-Jan-22	0% 0% 0% 0%			

24	November 2021 31 07 14	21	December 2021 28 05 2
<b>I</b>	nstall steel cage and concreting Testing		
	Sonic Test, interface	core and full core for b	ored pile
	Bored Pile Machine 4     Piling Works for Pier 9G (I	Bridge CT)	
excavate the so	al		
concreting Pile	962		
Drive Ca	sing & Grab to excavate the soil		
	Il steel cage and concreting		
	Testing Sonic Test, interface core a	nd full core for bored p	ile
			Insatllation of piles
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ther on 4 Aug 2	El - 7 Aug 21)		
her on 4 Aug 2	I - 7 Aug 21)		
op Tension and	Transverse Tension		
on at NW4			
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		Bottom ten	sion and external tensio
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	and external tension for SE6-7 Bottom tension and external tension	n for SE7-A	
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3MRF	Revision P (Sep 21 - Dec 21)	Checked	Approved
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## Data Date :08-Sep-21 Sheet 4of 5

	eet 4of 5	1 Million -		Densisian Dentar	Chart	l fin	Ob aired %		Sedember 2021		October 2021
Activity ID		ActulyName	Original Duration	Remaining Duration	San	Finish	Complete	2 29	05 12 19	26 03	10 17
	S2-CB3420	Construction of long stitching for W5-W3	27	27	01-Dec-21	04-Jan-22	0%				
	S2-CB3440	Construction of long stitching for E5-E6	27	27	16-Oct-21	16-Nov-21	0%				
	S2-CB3460	Construction of long stitching for E6-E7	27	27	25-Oct-21	24-Nov-21	0%				
	S2-CB3480	Construction of long stitching for E7-EA	27	27	02-Nov-21	02-Dec-21	0%				
	S2-CB3500	Construction of long stitching for E4-E5	27	27	07-Dec-21	10-Jan-22	0%				
	S2-CB3520	Construction of long stitching for E3-E4	27	27	08-Dec-21	11-Jan-22	0%				
							070				
	Procurement and D S2-CB2488	Procurement and delivery of bituminous materials	180 180	93 93	03-Sep-20 A 03-Sep-20 A	30-Dec-21 30-Dec-21	66%				
	Construction of Cor	ncrete Structure Above Deck and Waterproofing Works	119	119	08-Sep-21	31-Jan-22			ļ		
	Construction of Cor	ncrete Structure Above Deck	119	119	08-Sep-21	31-Jan-22					
	S2-CB3580	Construction of concrete structure at NW5-3	50	50	29-Nov-21	28-Jan-22	0%				
	S2-CB3585	Construction of concrete structure at SW5-3	50	50	01-Dec-21	31-Jan-22	0%				
	S2-CB3600	Construction of concrete structure at NE5-6	27	27	27-Oct-21	26-Nov-21	0%				
	S2-CB3605	Construction of concrete structure at SE5-6	27	27	22-Oct-21	22-Nov-21	0%				
	S2-CB3620	Construction of concrete structure at NE6-7	27	27	08-Sep-21	11-Oct-21	0%				Construction of concrete st
	S2-CB3625	Construction of concrete structure at SE6-7	27	27	29-Oct-21	29-Nov-21	0%				
	S2-CB3640	Construction of concrete structure at NE7-A	27	27	04-Oct-21	04-Nov-21	0%				
	S2-CB3645	Construction of concrete structure at SE7-A	27	27	06-Nov-21	07-Dec-21	0%				
	S2-CB3660	Construction of concrete structure at NE4-5	27	27	18-Nov-21	18-Dec-21	0%				
	S2-CB3665	Construction of concrete structure at SE4-5	27	27	30-Nov-21	03-Jan-22	0%				
	S2-CB3685	Construction of concrete structure at SE3-4	27	27	06-Dec-21	08-Jan-22	0%				
	Construction of Sig	n Gantries	20	20	01-Dec-21	23-Dec-21					
	S2-CB4530	Construction of sign gantry at E7-EA	20	20	01-Dec-21	23-Dec-21	0%				
	Make Good Concre		66	66	12-Oct-21	30-Dec-21					v
	S2-CB3780	Make good concrete surfacing at NE5-6	18	18	27-Nov-21	17-Dec-21	0%				
	S2-CB3790	Make good concrete surfacing at SE5-6	18	18	23-Nov-21	13-Dec-21	0%				
	S2-CB3800	Make good concrete surfacing at NE6-7	18	18	12-Oct-21	02-Nov-21	0%				
	S2-CB3810	Make good concrete surfacing at SE6-7	18	18	30-Nov-21	20-Dec-21	0%				
	S2-CB3820	Make good concrete surfacing at NE7-A	18	18	05-Nov-21	25-Nov-21	0%				
	S2-CB3830	Make good concrete surfacing at SE7-A	18	18	08-Dec-21	30-Dec-21	0%				
	Waterproofing Worl		30	30	03-Nov-21	07-Dec-21					
	S2-CB3970	Waterproofing works at NE6-7	16	16	03-Nov-21	20-Nov-21	0%				
	S2-CB4010	Waterproofing works at NE7-A	10	10	26-Nov-21	07-Dec-21	0%				
	Steel Bridge		193	110	01-Jun-21 A	20-Jan-22	-				
	Welding & Painting		170	87	01-Jun-21 A	21-Dec-21					
	Preparation Works Removal of the Tem	nporary Stiffening Supports inside the Steel Box	170 30	87 30	01-Jun-21 A 17-Nov-21	21-Dec-21 21-Dec-21	-				
	S2-SB2020	Removal of the temporary stiffening supports inside the steel box	30	30	17-Nov-21	21-Dec-21	0%				
	5% NDT (Eddy Curre		148	65	01-Jun-21 A	25-Nov-21	720/				Deck steel box
	S2-SB1540	Deck steel box	70	30	01-Jun-21 A	15-Oct-21	73%				Deck steel box
	S2-SB1560	Arch ribs	45	45	04-Oct-21	25-Nov-21	0%				
	Painting of the Ring S2-SB2040	Weld Painting of the west side span ring weld	24 7	24 7	28-Oct-21 17-Nov-21	24-Nov-21 24-Nov-21	0%				
	S2-SB2060	Painting of the east side span ring weld	7	7	28-Oct-21	04-Nov-21	0%				
	Removal of the Ten S2-SB2220	nporary Supports at W1 & E1 Removal of the temporary supports at W1	31 10	31 10	05-Nov-21 25-Nov-21	10-Dec-21 06-Dec-21	0%				
	S2-SB2260	Removal of the temporary supports at E1	10	10	05-Nov-21	16-Nov-21	0%				
	S2-SB2280	Removal of the temporary supports at E2	1	1	10-Dec-21	10-Dec-21	0%				
	Welding Works Secondary Deck Fa	cilities Welding	92 42	67 42	07-Aug-21 A 30-Sep-21	27-Nov-21 19-Nov-21				v	
	S2-SB2120	Secondary deck facilities welding	42	42	30-Sep-21	19-Nov-21	0%				
		ng Joint Cracks at N19	20	20	05-Nov-21	27-Nov-21					
	S2-SB2160	Assembly of the working platform for the welding joint repair of N19	5	5	05-Nov-21	10-Nov-21	0%				
	S2-SB2180	Welding repair and re-coating	15	15	11-Nov-21	27-Nov-21	0%				
	S2-SB2200	Completion of Repair of the welding joint cracks at N19	0	0		27-Nov-21	0%				
	Welding of the Joint	between Main Span and the East Side Span	60	40	07-Aug-21 A	27-Oct-21			<u>+</u>		1
	Remaining	Level of Effort Critical Remaining Work									Date
	Actual Wor	k 🔶 Milestone		Three I	Month Rol	lling Progr	ramme	September 2	2021 - December	2021)	08-Sep-21
	Remaining	Work Summary			-	5 8				,	
L											I

24     31     07     34     21     28       Construction of long stitching for E5-E6       Construction of concrete structure at NE6-7       Construction of concrete structure at NE6-7       Construction of concrete structure at NE7-A       Make good concrete surfacing at NE6-7       Make good concrete surfacing at NE6-7       Make good concrete surfacing at NE6-7													
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Waterproofing works at NE6-7			-										
	facing a	concrete sur	good c	Make									
		I											
	Waterp												
		ıt NE6-7	orks a	ofing w	aterpr	<b>—</b> V							
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Painting of the east side span ring weld					weld	n ring	side spa	he east	ting of t	Pair			
• · · · · · · · · · · · · · · · · · · ·	▼ F Removal	R								-			
Removal of the temporary supports at E1		ports at E1	v sudr	emporar	of the	noval	Rei						
	∎ F		. TI	1						_			
▼ Welding Works	_ 1	Works	Idine	- W									
Secondary Deck Facilities Welding		s Welding	cilitie	Deck Fa									_
Secondary deck facilities welding					Jondary	Sec	<u></u>	<u></u>	<u></u>	<u>.</u>			
Repair of the Weldi Assembly of the working platform for the welding joir					ing pla	e work	oly of the	Assemi					
Welding repair and	re-coatii	repair and 1	lding	W					I				
◆ Completion of Rep													
<ul> <li>Welding of the Joint between Main Span and the East Side Span</li> </ul>					ast Sid	d the F	Span an	1 Main	betweer	f the Joint	dino	▼ Weld	
	/ed	Approv	Ť			T	r ur				5		
3MRP (Sep 21 - Dec 21)					_			21)			RP	3MF	

Data Date :08-Sep-21 Sheet 5of 5

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

heet Sof S	ActivityName	Original Duration	Remaining Duratio	n Start	Finish	Physical %	1		September 2021	October 2021
			0	07 4 21 4	21 4	Physical % Complete			Openitor 22         19           05         12         19           ks and NDT for the ring weld of the east si	26 03 10 17
	Grinding Works and NDT for the ring weld of the east side span	25	0	07-Aug-21 A	31-Aug-21 A	100%		Grinding wor	no and 1917 1 for the filling weld of the east si	
S2-SB1740	Welding of the U-rib and I-rib at the void between two boxes	30	20	01-Sep-21 A	02-Oct-21	62%				Welding of the U-rib and I-rib at the void bet
S2-SB1760	Welding of the in-fill of ring weld (incl. NDT)	60	40	25-Aug-21 A	27-Oct-21	37%				
S2-SB1780	Completion of the joint of east side span	0	0		27-Oct-21	0%				
	between Main Span and the West Side Span Welding of the ring weld of west side span	82 10	57 0	10-Aug-21 A 10-Aug-21 A	16-Nov-21 25-Aug-21 A	100%	<ul> <li>Welding of</li> </ul>	the ring weld	of west side span	
S2-SB1910	Grinding Works	20	10	25-Aug-21 A	18-Sep-21	63%			Grinding Works	
	NDT for the ring weld of the west side span	5	5	20-Sep-21	25-Sep-21	0%			ND1	for the ring weld of the west side span
					-					to une mig weld of the west side span
	Welding of the U-rib and I-rib at the void between two boxes	30	30	27-Sep-21	02-Nov-21	0%			-	
S2-SB1980	Welding of the in-fill of ring weld (incl. NDT)	42	42	27-Sep-21	16-Nov-21	0%			-	
S2-SB2000	Completion of the joint of west side span	0	0		16-Nov-21	0%				
Construction of Stee	I-Concrete Transition Zone	90 17	90 17	04-Oct-21 09-Nov-21	20-Jan-22 27-Nov-21					v
	Concreting of the transition section	7	7	09-Nov-21	16-Nov-21	0%				
S2-CT1060	Welding of the box out on steel deck	10	10	17-Nov-21	27-Nov-21	0%				
Construction of the e	ast side transition	39	39	26-Oct-21	09-Dec-21					
	Concreting of the transition section	7	7	26-Oct-21	02-Nov-21	0%				
S2-CT1180	Welding of the box out on steel deck	10	10	03-Nov-21	13-Nov-21	0%				
S2-CT1200	Stressing of the PT bar and tendons	7	7	01-Dec-21	08-Dec-21	0%				
	Removal of the temporary jacks from the Pier E2	1	1	09-Dec-21	09-Dec-21	0%				
			1			076				
Road Works and Su S2-RW1000	race Furniture Waterproofing for division area	90 65	90 65	04-Oct-21 16-Oct-21	20-Jan-22 03-Jan-22	0%				•
S2-RW1015	Installation of pre-cast planter type 1 and type 2	25	25	03-Nov-21	01-Dec-21	0%				
	Installation of ducting and in-situ concreting	50	50	15-Nov-21	14-Jan-22	0%				
	Installation of steel plate for L3 parapet	50	50	04-Oct-21	01-Dec-21	0%				
	Installation of the isolation panel	45	45	26-Nov-21	20-Jan-22	0%				
Assocaited, E&M Wo UBG and AIC	rks for CBL Main Bridge and Marine Viaduct	16 16	16 16	07-Dec-21 07-Dec-21	24-Dec-21 24-Dec-21					
UBG UBG of the main span		16 16	16 16	07-Dec-21 07-Dec-21	24-Dec-21 24-Dec-21					
	Assembly of the working platform	4	4	07-Dec-21 07-Dec-21	10-Dec-21	0%				
S2-EM1020	Installation of the remaining rails	12	12	11-Dec-21	24-Dec-21	0%				
S2-EM1040	Replacement of the cables and cable tray	7	7	11-Dec-21	18-Dec-21	0%				
Section 5 of the Work	s-All Works within Portion V (CBL E&M Plantroom)	416	118	30-Jul-20 A	29-Jan-22					
Remaining Work		150	75	30-Jul-20 A	07-Dec-21					
	External works (inclluding lanscaping)	90	70	30-Jul-20 A	01-Dec-21	80%				
S5-PR2200	Water works, pluming and drainage works	60	5	30-Jul-20 A	07-Dec-21	80%				
Major Services Syste	m	390	118	28-Sep-20 A	29-Jan-22					
Electrical System		268	118	02-Oct-20 A	29-Jan-22					
UPS Room S5-PR2580	UPS Installation (Including E&M Work)	100 100	100 100	08-Sep-21 08-Sep-21	08-Jan-22 08-Jan-22	0%				
	Or 5 instantation (including Eddivi work)			-		070				
Generator Room S5-PR2500	Generator Installation (Including E&M Work)	268 90	118 70	02-Oct-20 A 02-Oct-20 A	29-Jan-22 01-Dec-21	57%				
		3	3							
	Generator SAT			02-Dec-21	04-Dec-21	0%				
	Testing and Commisioning	45	45	06-Dec-21	29-Jan-22	0%		<u></u>		
MVAC System Installation of MVAC	Sustam	346	74 74	28-Sep-20 A 28-Sep-20 A	06-Dec-21 06-Dec-21					
	System MVAC Installation Work	70	56	28-Sep-20 A 28-Sep-20 A	15-Nov-21	75%	:			
S5-PR2900	MVAC Testing and Commisioning	18	18	16-Nov-21	06-Dec-21	0%				
	Accomplish of MVAC Installation	0	0		06-Dec-21	0%				
5J-1 K2720	a woon prior of 191 year mountainon	0	0		00-120-21	070				

Remaining Level of Effort

Remaining Work

Critical Remaining Work

Milestone

Actual Work  $\blacklozenge$ 

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24		31	07		14		21		28		05	2
between	···· 1 ··											
between												
	Weldin	ig of the in-f	ill of ring we	eld (incl	. NDT	[]						
•	Compl	etion of the	joint of east	side spa	m							
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		Weldir	ng of the U-r	rib and I	-rib at	the voi	d between	n two ł	oxes			
					Weld	ding of	the in-fill	of ring	g weld	incl. N	IDT)	
					♦ Con	nnletior	n of the jo	int of y	vest sid	e snan		
						1	j.					
								Cons	truction	n of the	west	side
		• • •			Con	creting	of the tra				, west	Sicc
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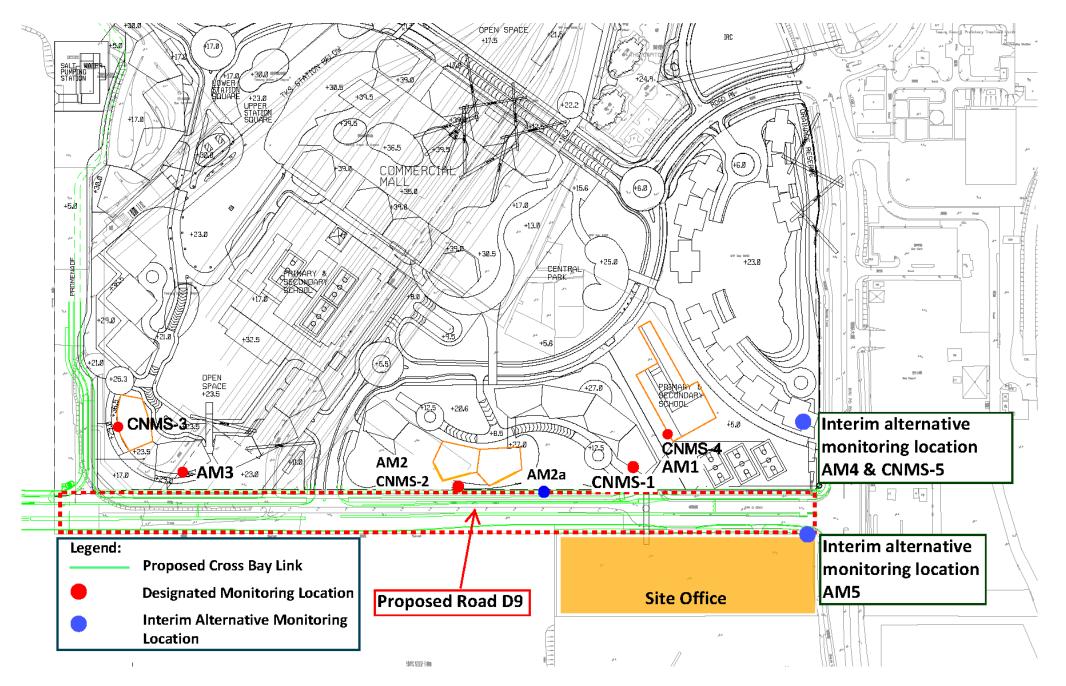


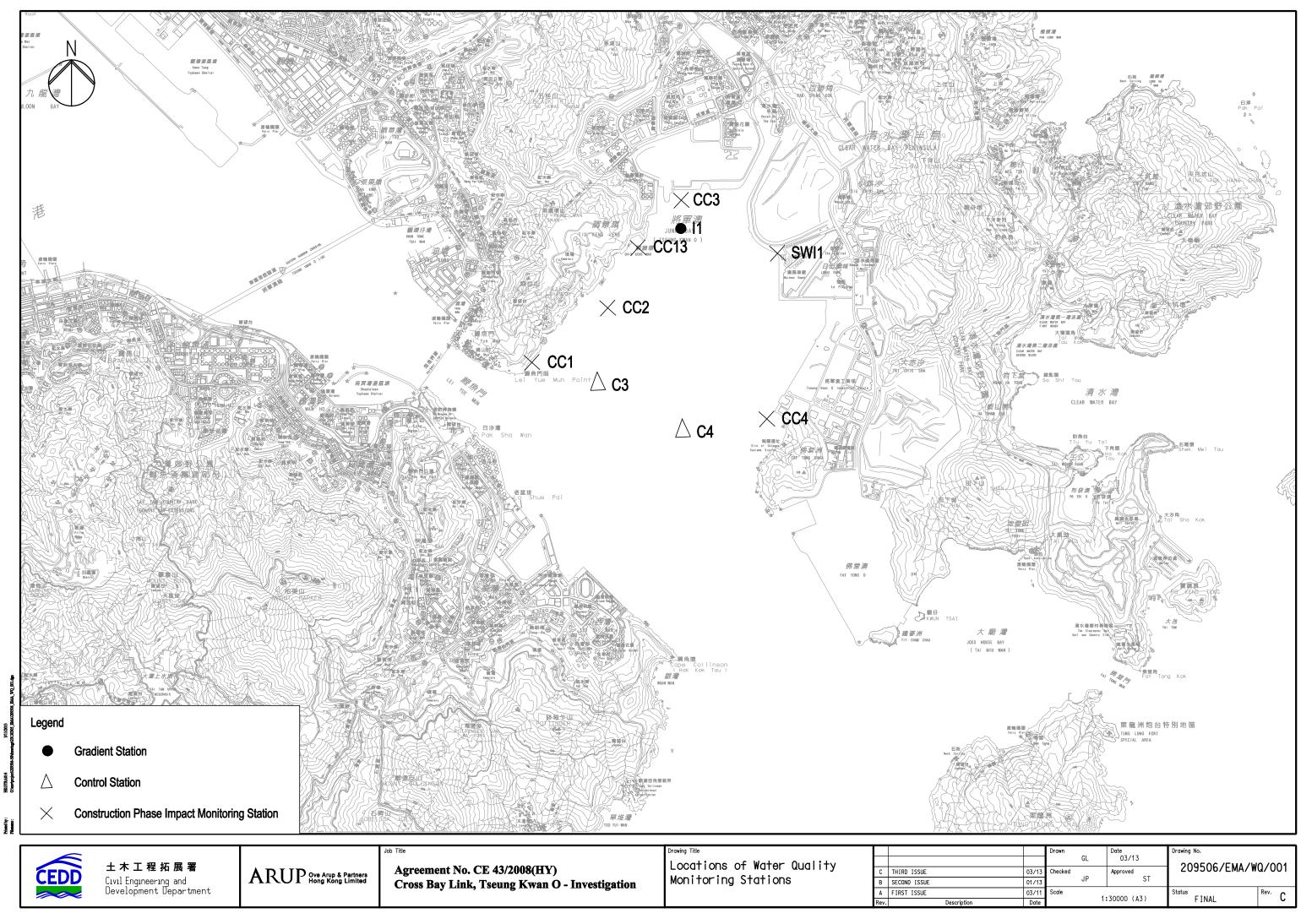
# Appendix D

Monitoring Location (Air Quality, Noise and Water Quality)

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

# AUES





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03/13	Checked	10	Approved	209506/EMA/W	u/001
01/13		JP	ST		
03/11	Scale	4.	20000 (17)	Status	Rev. C
Date		13	30000 (A3)	FINAL	U U



Appendix E

**Event and Action Plan** 



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



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

## CEDD Contract Agreement No. EDO/04/2018 -Environmental Team for Cross Bay Link, Tseung Kwan O Event and Action Plan for Air Quality Monitoring



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

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



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



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



	ACTION								
EVENT	Environmental Team (ET)	Independent Environmental Checker (IEC)	Project Consultant	Contractor					
sampling days at 2	control stations as appropriate; 2. If exceedance is found to be caused	2. Review proposal on mitigation measures	2. Request Contractor to critically review the	<ul><li>noncompliance in writing;</li><li>2. Rectify unacceptable</li></ul>					
water sensitive receiver(s) m 3 4 4 e m 5 1 1 6 6 iii 7 ff 8 8 9	by the marine works, repeat <i>in-situ</i> measurement to confirm findings; 3. Inform IEC, contractor and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, and Contractor; 6. Ensure mitigation measures are implemented; 7. Prepare to increase the monitoring frequency to daily; 8. If exceedance occurs at WSD salt water intake, inform WSD; 9. Repeat measurement on next day of exceedance.	submitted by Contractor and advise the Project Consultant accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	<ul> <li>working methods;</li> <li>3. Make agreement on the mitigation measures to be implemented;</li> <li>4. Assess the effectiveness of the implemented mitigation measures;</li> <li>5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit level.</li> </ul>	practice; 3. Check all plant and equipment and consider changes of working methods; 4. Discuss with ET, IEC and Project Consultant and submit proposal of mitigation measures to IEC and Project Consultant within 3 working days of notification; 5. Implement the agreed mitigation measures; 6. As directed by the Engineer, to slow down or to stop all or part of the construction activities.					



# Appendix F

## Impact Monitoring Schedule of the Reporting Month and Coming Month



#### Impact Monitoring Schedule for the reporting month – October 2021

		13. NOISE	Air Quality Monitoring	
	Date	MONITORING (Leq30min)	14. 1-HOUR TSP	15. 24-HOUR TSP*
Fri	1-Oct-21			
Sat	2-Oct-21		✓	
Sun	3-Oct-21			
Mon	4-Oct-21			
Tue	5-Oct-21			
Wed	6-Oct-21			✓
Thu	7-Oct-21			
Fri	8-Oct-21	✓	✓	
Sat	9-Oct-21			
Sun	10-Oct-21			
Mon	11-Oct-21			
Tue	12-Oct-21			✓
Wed	13-Oct-21			
Thu	14-Oct-21			
Fri	15-Oct-21	<b>√</b> *	<b>√</b> *	
Sat	16-Oct-21			
Sun	17-Oct-21			
Mon	18-Oct-21			✓
Tue	19-Oct-21	✓	✓	
Wed	20-Oct-21			
Thu	21-Oct-21			
Fri	22-Oct-21			
Sat	23-Oct-21			✓
Sun	24-Oct-21			
Mon	25-Oct-21	✓	✓	<b>√</b> #
Tue	26-Oct-21			
Wed	27-Oct-21			
Thu	28-Oct-21			
Fri	29-Oct-21			✓
Sat	30-Oct-21		✓	
Sun	31-Oct-21			

\* 1-Hour TSP and Noise monitoring on 13 October 2021 was cancelled due to adverse weather condition (Typhoon Signal No.8 inforce) and rescheduled to 15 October 2021.

# 24-Hour TSP monitoring at AM2a on 18 and 23 October 2021 were failure due to power supply issue. The 24-Hour TSP monitoring at AM2a were resumed on 25 October 2021.

✓	Monitoring Day
	Sunday or Public Holiday



<b>Impact Monitoring</b>	Schedule for	coming month	November 2021	
impact monitoring	Schedule for	coming monui -	- November 2021	

		16. NOISE	hth – November 2021 Air Quality Monitoring	
	Dete	MONITORING	17. 1-HOUR TSP	18. 24-HOUR TSP*
	Date	(Leq30min)		
Mon	1-Nov-21			
Tue	2-Nov-21			
Wed	3-Nov-21			
Thu	4-Nov-21			√
Fri	5-Nov-21	✓	✓	
Sat	6-Nov-21			
Sun	7-Nov-21			
Mon	8-Nov-21			
Tue	9-Nov-21			
Wed	10-Nov-21			✓
Thu	11-Nov-21	✓	✓	
Fri	12-Nov-21			
Sat	13-Nov-21			
Sun	14-Nov-21			
Mon	15-Nov-21			
Tue	16-Nov-21			✓
Wed	17-Nov-21	✓	√	
Thu	18-Nov-21			
Fri	19-Nov-21			
Sat	20-Nov-21			
Sun	21-Nov-21			
Mon	22-Nov-21			✓
Tue	23-Nov-21	✓	✓	
Wed	24-Nov-21			
Thu	25-Nov-21			
Fri	26-Nov-21			
Sat	27-Nov-21			✓
Sun	28-Nov-21			
Mon	29-Nov-21	✓	√	
Tue	30-Nov-21			

✓	Monitoring Day	
	Sunday or Public Holiday	



# Appendix G

# Calibration Certificates of Equipment and Accreditation Laboratory Certificate

Location :	: Near Lo	ohas Park	c Phase 6	5			Date of	of Cal	ibratio	n: 10-S	ep-21				
Location 1	ID :	AM2a				1	Next Cal	ibrati	on Dat	e: 10-N	Jov-21				
Name and	l Model: '	TISCH H	IVS Mo	del TE-517(	)			Tec	chnicia	n: Eric					
						CONDI	TIONS								
	Se	a Level I	Pressure	(hPa)		1008.3	Ī		Corr	ected F	ressure	e (mm ]	Hg)	756.2	225
	~ -		erature	· · ·		30.5	1				berature				304
		romp	oracare				ł			rom		(11)	Ŀ		01
				CA	ALIE	SRATIC	ON ORIF	ICE							
				Make->	TIS	СН	]			Qstd S	lope ->	>	2	2.10574	
				Model->	502	.5A			Qs	td Inter	cept ->	>	_	0.0098	5
				Serial # ->	194	1									
					С	ALIBR	ATION								
Plate	H20 (L)	H2O (R)	H20	Qstd		Ι	IC				LINI	EAR			
No.	(in)	(in)	(in)	(m3/min)	(c	hart)	correct	ed		F		SSION	[		
18	5.30	5.30	10.6	1.533		56	54.85	5			Slope =	= 35.2	996		
13	4.40	4.40	8.8	1.397		50	48.97				ercept =		295		
10	3.60	3.60	7.2	1.264		47	46.03				coeff. =		982		
7	2.20	2.20	4.4	0.989		36	35.26								
5	1.40	1.40	2.8	0.790		29	28.40								
	1110	1110		01170	Г										
Calculatio	ons :								FLO	W RAT	Е СНА	RT			
Qstd = 1/1	n[Sart(H	20(Pa/Ps	td)(Tstd	/Ta))-b]		60.0	<sup>50</sup>								
IC = I[Squ													•		
		., ( = = = = = =	/]			50.0									
Qstd = sta	indard flo	w rate													
IC = correction			es								/	7			
I = actual		-	03			<u>ට</u> 40.0									
m = calibr		-				Actual chart response (IC 0.05 30.0									
b = calibra	-	-	t			uod				/	1				
	-			oration ( deg	ч V	<b>5</b> 30.0	00			-					
	_		-	ation ( mm ]	- 1	har									
PSIG = act	ual press		ig canon		пg	nal o									
For subs	auant a	alaulatia	n of con	pler flow:		20.0 <b>Actu</b>	00								
	-			-											
1/m((I)[\$	Sqrt(298/	Tav)(Pav	///60)]-0	))		10.0									
	1 1					10.0	~~								
m = samp															
b = samp		ept				0.0									
I = chart r	-						0.000		0.500		000	1.50	00	2.00	00
Tav = dai									Standa	ard Flow	Rate (m	3/min)			
Pav = dail	ly averag	e pressui	e		L										

Location :	: Junctior	n of Wan	Po Roa	d and Wan (	) R	load	Date of C	Calibı	ration: 27-Au	1 <b>g-</b> 21			
Location 1	ID :	AM5				Ν	Vext Calibra	ation	Date: 27-00	ct-21			
Name and	l Model: '	TISCH H	IVS Mo	del TE-517(	)		Т	Techr	nician: Ho				
					(	CONDI	TIONS						
				_							_		
	Se	a Level I	Pressure	(hPa)		1012		(	Corrected Pr	essure (mr	n Hg)	,	759
		Temp	berature	(°C)		25.6			Tempe	erature (K)		,	299
		1					,		1	( )	L		
				CA		BRATIO	N ORIFICE						
				Make->	TIS	SCH			Qstd Sl	ope ->		2.10574	4
				Model->	502	25A			Qstd Interc	cept ->		-0.0098	35
				Serial # ->	194	1					-		
							·						
					C	ALIBR	ATION						
Plate	H20 (L)	H2O (R)	H20	Qstd		Ι	IC			LINEAR			
No.	(in)	(in)	(in)	(m3/min)	(0	chart)	corrected		RI	EGRESSIC	DN		
18	5.80	5.80	11.6	1.619		58	57.85			lope = 27			
13	4.20	4.20	8.4	1.379		53	52.86			cept = 14			
10	2.40	2.40	4.8	1.043		44	43.88			$\operatorname{beff.} = 0$			
7	1.90	1.90	3.8	0.929		39	38.90		0011.00		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
5	1.30	1.30	2.6	0.769		35	34.91						
	1.50	1.50	2.0	0.10)	ſ	55	51.71						
Calculatio	ons :								FLOW RATE	CHART			
Qstd = 1/r	n[Sart(H	20(Pa/Ps	td)(Tstd	/Ta))-bl		70.0	0						1
IC = I[Squ				, Iu)) 0]									
10 1[04]		.)(1500/1	u)]			60.0	00						-
Qstd = sta	ndard flo	w rate											
IC = correction			es			50.0	0			<b>&gt;</b>			
I = actual		-	03			-							
m = calibr						) es				◆			
b = calibra	-	-	t			<b>öd</b> 40.0	00		<b>^</b>				-
	-	-		oration ( deg	, V	tres			•				
	_		_		-	100 E	00						-
Psid = aci	ual press	ure durin	ig canor	ation ( mm I	ng	Actual chart response (IC)							
For subs	auont c	alculatio	n of san	pler flow:		<b>Pcti</b> 20.0	00						
1/m(( I )[S	-			-		2010							
1/111((1)[;	Sqft(298/		///00)]-[	))									
-	lonalara					10.0	00						1
m = samp													
b = samp		ept				0.0							1
I = chart r	-						0.000	0.5			1.500	2.0	000
Tav = dai								S	Standard Flow F	kate (m3/min)			
Pav = dail	ly averag	e pressui	e										
1													

-													
Location :	: Junction	n of Wan	Po Roa	d and Wan (	O R	oad	Date of C	Calibra	ation: 27-Oc	t-21			
Location 1	ID :	AM5				N	Jext Calibra	ation	Date: 27-De	c-21			
Name and	l Model: '	TISCH H	HVS Mo	del TE-517(	)		Т	<i>`echn</i>	ician: Wai				
					C		TIONS						
				F							F		
	Se	a Level I	Pressure	(hPa)		1016.7		(	Corrected Pre	essure (mi	n Hg)	762.5	525
		Temp	berature	(°C)		25.6			Tempe	rature (K)	)	2	299
				CA	ALIE	BRATIO	N ORIFICE						
				t							г		
				Make->					Qstd Slo		-	2.10574	
				Model->					Qstd Interc	ept ->		-0.0098	5
				Serial # ->	194	1							
					C	ALIBR	ATION						
Plate	H20(L)	H2O (R)	H20	Qstd		Ι	IC			LINEAR			
No.	(in)	(in)	(in)	(m3/min)	(c	hart)	corrected		RF	EGRESSI			
18	5.90	5.90	11.8	1.637		59	58.98			lope = 27			
13	4.30	4.30	8.6	1.398		52	51.98			cept = 13			
10	2.50	2.50	5.0	1.067		43	42.98			eff. = (			
7	1.90	1.90	3.8	0.931		39	38.99						
5	1.30	1.30	2.6	0.771		35	34.99						
	•			ι      ι	Γ								
Calculatio	ons :					70.0	0	I	FLOW RATE	CHART			
Qstd = 1/r	n[Sqrt(H	20(Pa/Ps	td)(Tstd	/Ta))-b]		70.0							
IC = I[Squ	rt(Pa/Pstd	l)(Tstd/T	'a)]										
						60.0	00						
Qstd = sta	indard flo	w rate											
IC = corrections	ected char	rt respon	es			50.0	00				•		
I = actual	chart resp	ponse				(jc)							
m = calibi	rator Qsto	l slope				<b>8</b> 40.0	0			*			
b = calibra	ator Qstd	intercep	t			esbe							
Ta = actua	al temper	ature dui	ring calil	oration ( deg	g K	<b>hart r</b> 30.0	0		·				
Pstd = act	ual press	ure durir	ng calibra	ation ( mm I	Hg	5 50.0	10						
						Actual chart response (IC)							
	-			pler flow:		<b>⋖</b> 20.0	00						
1/m((I)[S	Sqrt(298/	Tav)(Pav	/760)] <b>-</b> t	)									
						10.0	00						
m = samp													
b = samp		ept				0.0	0						
I = chart r	-						0.000	0.50	00 1.00	. 00	1.500	2.0	00
Tav = dail								St	tandard Flow R	ate (m3/min	)		
Pav = dail	ly average	e pressui	e		L								



RECALIBRATION DUE DATE: January 19, 2022

Certificate of Calibration

Cal. Date:	January 19,	2021	Rootsn	neter S/N:	438320	Ta:	294	°K
Operator:	Jim Tisch					Pa:	755.1	mm Hg
Calibration	Model #:	TE-5025A	Calib	rator S/N:	1941			
		Vol. Init	Vol. Final	ΔVol.	ΔTime	ΔΡ	ΔΗ	1
	Run	(m3)	(m3)	(m3)	(min)	(mm Hg)	(in H2O)	
	1	1	2	1	1.4830	3.2	2.00	1
	2	3	4	1	1.0420	6.4	4.00	
	3	5	6	1	0.9290	8.0	5.00	
	4	7	8	1	0.8840	8.8	5.50	4
	5	9	10	1	0.7340	12.9	8.00	1
			D	ata Tabulat	ion			Ì
			I. Pa	V Tstd \				1
	Vstd	Qstd	$\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)}$	)( <u>Tstd</u> ) Ta)		Qa	√∆H(Ta/Pa)	
	(m3)	(x-axis)	(y-axis	s)	Va	(x-axis)	(y-axis)	
	1.0029	0.6762	1.419	2	0.9958	0.6715	0.8824	1
	0.9986	0.9583	2.007	1	0.9915	0.9516	1.2479	1
	0.9965	1.0726	2.244	0	0.9894	1.0650	1.3952	
	0.9954	1.1260	2.353		0.9883	1.1180	1.4633	
	0.9899	1.3487	2.838		0.9829	1.3391	1.7648	
		m=	2.105			m=	1.31858	
	QSTD	b=	-0.009		QA	b=	-0.00612	
		r=	0.9999	92		r=	0.99992	l.
				Calculation				
			/Pstd)(Tstd/Ta	)		∆Vol((Pa-∆F	P)/Pa)	
	Qstd=	Vstd/∆Time				Va/∆Time		
			For subseque	ent flow rat	e calculation	ns:		
	Qstd=	1/m (( 1/0H(-	$\frac{Pa}{Pstd} \left( \frac{Tstd}{Ta} \right)$	)-b)	Qa=	$1/m \left( \sqrt{\Delta H} \right)$	(Та/Ра))-b)	
1	Standard	Conditions						
Tstd						RECAL	IBRATION	
Pstd		mm Hg		E F		una una a da com	and an entities of	
ALL calibrat		ey	. (120)				nnual recalibratio	
		er reading (in eter reading (					legulations Part	
		perature (°K)					Reference Meth	
		essure (mm					ended Particulat	
b: intercept			01		the	e Atmosphe	re, 9.2.17, page	30
m: slope				L				

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

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



輝創工程有限公司

Sun Creation Engineering Limited Calibration & Testing Laboratory

# Certificate of Calibration 校正證書

Certificate No. : C210388 證書編號

1

Sound Calibrator (EQ089)		
Rion		
NC-75		
34680623		
Action-United Environmental Services a	nd Consulting	
Unit A, 20/F., Gold King Industrial Buil	ding,	
35-41 Tai Lin Pai Road, Kwai Chung, N	.т.	
	Rion NC-75 34680623 Action-United Environmental Services a Unit A, 20/F., Gold King Industrial Buil	Rion NC-75

#### TEST CONDITIONS / 測試條件

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

### TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 20 January 2021

#### TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By 測試

K P Cheuk

Assistant Engineer

Certified By 核證

K C Lee Engineer

Date of Issue : 簽發日期 20 January 2021

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。



輝創工程有限公司

Sun Creation Engineering Limited Calibration & Testing Laboratory

# Certificate of Calibration 校正證書

Certificate No. : C210388 證書編號

- 1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
- 2. The results presented are the mean of 3 measurements at each calibration point.
- 3. Test equipment :

Equipment ID CL130 CL281 TST150A Description Universal Counter Multifunction Acoustic Calibrator Measuring Amplifier Certificate No. C203952 CDK1806821 C201309

- 4. Test procedure : MA100N.
- 5. Results :
- 5.1 Sound Level Accuracy

UUT	Measured Value	Mfr's Spec.	Uncertainty of Measured Value
Nominal Value	(dB)	(dB)	(dB)
94 dB, 1 kHz	94.0	± 0.25	± 0.2

#### 5.2 Frequency Accuracy

UUT Nominal Value	Measured Value	Mfr's	Uncertainty of Measured Value
(kHz)	(kHz)	Spec.	(Hz)
1	1.000 0	1 kHz ± 0.1 %	$\pm 0.1$

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

Note :

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

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

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書器先獲本實驗所書而批准。

The lesi equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.



輝創工程有限公司

Sun Creation Engineering Limited

Calibration & Testing Laboratory

# Certificate of Calibration 校正證書

Certificate No. : C210389 證書編號

ITEM TESTED / 送檢巧	百日	(Job No. / 序引編號: IC21-0122)	Date of Receipt / 收件日期: 19 January 2021
Description / 儀器名稱	:	Sound Level Meter (EQ018)	
Manufacturer / 製造商	:	Rion	
Model No. / 型號	:	NL-52	
Serial No. / 編號	:	00809405	
Supplied By / 委託者	1	Action-United Environmental Services a	and Consulting
		Unit A, 20/F., Gold King Industrial Buil	ding,
		35-41 Tai Lin Pai Road, Kwai Chung, N	I.T.

#### TEST CONDITIONS / 測試條件

Temperature / 溫度 :  $(23 \pm 2)^{\circ}C$ Line Voltage / 電壓 :

Relative Humidity / 相對濕度 : (50±25)%

#### TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 20 January 2021 :

#### TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By 測試

K P Cheuk

Assistant Engineer

Certified By 核證

K C Lee Engineer

Date of Issue 簽發日期

:

20 January 2021

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。



# Certificate of Calibration 校正證書

Certificate No. : C210389 證書編號

- 1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- 2. Self-calibration was performed before the test.
- 3. The results presented are the mean of 3 measurements at each calibration point.
- 4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C210084
CL281	Multifunction Acoustic Calibrator	CDK1806821

- 5. Test procedure : MA101N.
- 6. Results :
- 6.1 Sound Pressure Level
- 6.1.1 Reference Sound Pressure Level

	UUT	Setting		Applie	d Value	UUT	IEC 61672	
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)	Class 1 Spec. (dB)	
30 - 130	LA	A	Fast	94.00	1	94.1	$\pm 1.1$	

#### 6.1.2 Linearity

	UU	T Setting	(	Applie	UUT	
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)
30 - 130	LA	А	Fast	94.00	1	94.1 (Ref.)
				104.00		104.1
- A			1	114.00	1.1.1	114.1

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

#### 6.2 Time Weighting

	UUT Setting				d Value	UUT	IEC 61672	
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)	Class 1 Spec. (dB)	
30 - 130	LA	A	Fast	94.00	1	94.1	Ref.	
			Slow			94.1	± 0.3	

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The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.



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

# Certificate of Calibration 校正證書

Certificate No.: C210389 證書編號

#### 6.3 Frequency Weighting

#### 6.3.1 A-Weighting

	UUT Setting			Applied Value		UUT	IEC 61672	
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.	Reading (dB)	Class 1 Spec. (dB)	
30 - 130 L <sub>A</sub>	L <sub>A</sub>	A	Fast	94.00	63 Hz	67.8	$-26.2 \pm 1.5$	
			250 H 500 H		125 Hz	77.9	$-16.1 \pm 1.5$	
					250 Hz	85.4	$-8.6 \pm 1.4$	
	0.11			500 Hz	90.9	$-3.2 \pm 1.4$		
				1 kHz	94.1	Ref.		
					2 kHz	kHz 95.3 +	$+1.2 \pm 1.6$	
					4 kHz	95.1	$+1.0 \pm 1.6$	
					8 kHz	93.1	-1.1 (+2.1 ; -3.1)	
					12.5 kHz	89.7	-4.3 (+3.0 ; -6.0)	

#### 6.3.2 C-Weighting

-	UUT Setting			Applied Value		UUT	IEC 61672
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.	Reading (dB)	Class 1 Spec. (dB)
30 - 130	L <sub>C</sub>	c C Fast	Fast	94.00	63 Hz	93.3	$-0.8 \pm 1.5$
					125 Hz	93.9	$-0.2 \pm 1.5$
					250 Hz	94.1	$0.0 \pm 1.4$
					500 Hz	94.1	$0.0 \pm 1.4$
				1 kHz	94.1	Ref.	
					2 kHz	93.9	$-0.2 \pm 1.6$
					4 kHz	93.3	$-0.8\pm1.6$
				8 kHz	91.2	-3.0 (+2.1 ; -3.1)	
_					12.5 kHz	87.7	-6.2 (+3.0 ; -6.0)

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# Certificate of Calibration 校正證書

Certificate No. : C210389 證書編號

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 16463

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :	94 dB :	63 Hz - 125 Hz	: ± 0.35 dB
		250 Hz - 500 Hz	$\pm 0.30 \text{ dB}$
		1 kHz	$\pm 0.20 \text{ dB}$
		2 kHz - 4 kHz	$\pm 0.35 \text{ dB}$
		8 kHz	$\pm 0.45 \text{ dB}$
		12.5 kHz	$\pm 0.70 \text{ dB}$
	104 dB:	1 kHz	$\pm 0.10 \text{ dB}$ (Ref. 94 dB)
	114 dB :	1 kHz	$\pm 0.10 \text{ dB}$ (Ref. 94 dB)

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

Note :

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

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# ALS Technichem (HK) Pty Ltd

### **ALS Laboratory Group**

ANALYTICAL CHEMISTRY & TESTING SERVICES

#### SUB-CONTRACTING REPORT



		11/20400544
CONTACT	: MR BEN TAM	WORK ORDER HK2102511
CLIENT	ACTION UNITED ENVIRONMENT	
	SERVICES AND CONSULTING	
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41	SUB-BATCH : 1
	TAI LIN PAI ROAD, KWAI CHUNG, N.T. HONG	DATE RECEIVED : 15-JAN-2021
	KONG	DATE OF ISSUE : 26-JAN-2021
PROJECT	:	NO. OF SAMPLES : 1
		CLIENT ORDER +

#### General Comments

- Samples(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.
- Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.
- Calibration was subcontracted to and analysed by Action United Environmental Services & Consulting.

#### Signatories

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

Signatories	Position	
Ki daved Jong		
Richard Fung	Managing Director	

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

All pages of this report have been checked and approved for release.

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

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

CLIENT PROJECT : HK2102511

: 1 : ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING



 ALS Lab
 Client's Sample ID
 Sample
 Sample Date
 External Lab Report No.

 ID
 Type
 Type
 ID
 ID
 IN: 3Y6503
 AIR
 15-Jan-2021
 S/N: 3Y6503

## **Equipment Verification Report (TSP)**

#### **Equipment Calibrated:**

Туре:	Laser Dust monitor
Manufacturer:	Sibata LD-3B
Serial No.	3Y6503
Equipment Ref:	EQ112
Job Order	HK2102511

#### **Standard Equipment:**

Standard Equipment:	Higher Volume Sampler
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018
Last Calibration Date:	8 October 2020
Last Calibration Date:	8 October 2020

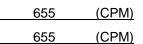
### **Equipment Verification Results:**

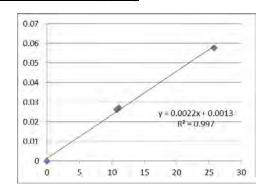
Testing Date:

31 December 2020

Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in mg/m <sup>3</sup> (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/60min)
2hr01min	09:16 ~ 11:17	10.9	1027.0	0.058	3127	25.8
2hr01min	11:19 ~ 11:20	10.9	1027.0	0.027	1347	11.1
2hr01min	11:22 ~ 13:23	10.9	1027.0	0.026	1298	10.8

Sensitivity Adjustment Scale Setting (Before Calibration) Sensitivity Adjustment Scale Setting (After Calibration)





#### Linear Regression of Y or X

0.0022
0.9985
8 January 2021

#### Remarks:

### 1. Strong Correlation (R>0.8)

2. Factor 0.0022 should be apply for TSP monitoring

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



Location : Gold King Industrial Bu Location ID : Calibration Room	ilding, Kwai C	Chung	Date of Calibra Next Calibration I	
	CON	DITIONS		
Sea Level Pressure (hPa) Temperature (°C)	1015.2 25.5		Corrected Pressure (mm H Temperature (K)	Hg) 761.4 299
	CALIBRA	TION ORIFICE		
Make Mode Calibration Date	l-> 5025A	-5A Qstd Intercept ->		2.03014 -0.04616 7-Feb-21
	CALI	BRATION		
Plate H20 (L)H2O (R) H20 Qstd No. (in) (in) (in) (m3/mi		IC corrected	LINEAR REGRESSION	I
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	5         56           5         49           5         42           4         32	56.00 49.00 42.00 32.00 21.00	Slope = $38.0056$ Intercept = $-11.6655$ Corr. coeff. = $0.9991$	
<b>Calculations :</b> Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b] IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)] Qstd = standard flow rate IC = corrected chart respones I = actual chart response m = calibrator Qstd slope b = calibrator Qstd intercept Ta = actual temperature during calibration (	t deg K )	50.00	FLOW RATE CHART	
Pstd = actual pressure during calibration ( r For subsequent calculation of sampler flor 1/m(( I )[Sqrt(298/Tav)(Pav/760)]-b) m = sampler slope b = sampler intercept I = chart response Tav = daily average temperature Pav = daily average pressure	1	0.00	0.500 1.000 1. Standard Flow Rate (m3/min)	500 2.000

		PL.		-			RECALIB DUE D	
						F		
viro			100		1	L	February	1, 2021
	February 7,	/	Calibration C Rootsm		on Informat	ion Ta: 2		
Operator: . Calibration N	Jim Tisch	TE-5025A	Calik	orator S/N:	1612	Pa: 7	'45.5 mm	Hg
Calibration	10del #.	1E-3023A	Callu	rator s/in:	1012			
		Vol. Init	Vol. Final	ΔVol.	ΔTime	ΔΡ	ΔH	
	Run	(m3)	(m3)	(m3)	(min)	(mm Hg)	(in H2O)	
	1	1	2	1	1.3730	3.2	2.00	
	2	3	4	1	0.9820	6.4	4.00	
	3	5	6	1	0.8780	8.0	5.00	
	4	7	8	1	0.8340	8.8	5.50	
L.	5	9	10	1	0.6900	12.8	8.00	
ſ			D	Data Tabulat	lation			
	Vstd	Qstd	$\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)}$	)( <u>Tstd</u> )		Qa V	$\Delta H(Ta/Pa)$	
l	(m3)	(x-axis)	(y-axis		Va	(x-axis)	(y-axis)	
1	0.9866	0.7186	1.407		0.9957	0.7252	0.8896	
	0.9824	1.0004	1.990		0.9914	1.0096	1.2581	
ŀ	0.9802	1.1165	2.225		0.9893	1.1267	1.4066	
ŀ	0.9792	1.1741	2.334		0.9882	1.1849	1.4753	
F	0.5755	1.4114 m=	2.015		0.9020	1.4244 m=	1.27124	
	QSTD	b=	-0.046		QA	b=	-0.02917	
	4515	r=	0.9999		Sec.	r=	0.99995	
ī				Calculation				
F	Vstd=	ΔVol(/Pa-ΔP	)/Pstd)(Tstd/Ta			ΔVol((Pa-ΔP)	(Pa)	
F		Vstd/ATime				Va/ATime	// 4/	
			For subseque	ent flow rat				
[	Qstd=	1/m (( \\ \[ \[ \] \  \  \  \  \  \  \  \  \  \  \  \  \	$\left(\begin{array}{c} Pa \\ \hline Pstd \end{array}\right)\left(\begin{array}{c} Tstd \\ \hline Ta \end{array}\right)$	))-b)		//	(Ta/Pa))-b)	
		Conditions						-
Tstd:	298.15					RECALI	BRATION	
Pstd:		mm Hg Key			US EPA reco	ommends and	nual recalibration pe	r 1998
AH: calibrato			n H2O)				egulations Part 50 to	
ΔH: calibrator manometer reading (in H2O) ΔP: rootsmeter manometer reading (mm Hg)								
					Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in			
Ta: actual abs	solute temp	Ta: actual absolute temperature (°K) Pa: actual barometric pressure (mm Hg)				ion of Suspen	nded Particulate Ma	tter in

Tisch Environmental, Inc.

145 South Miami Avenue

Village of Cleves, OH 45002

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

# ALS Technichem (HK) Pty Ltd

### ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES





CONTACT	: MR BEN TAM	WORK ORDER	HK2102507
CLIENT	ACTION UNITED ENVIRONMENT		
	SERVICES AND CONSULTING		
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41	SUB-BATCH	: 1
	TAI LIN PAI ROAD, KWAI CHUNG, N.T. HONG	DATE RECEIVED	: 15-JAN-2021
	KONG	DATE OF ISSUE	: 26-JAN-2021
PROJECT	:	NO. OF SAMPLES	: 1
		CLIENT ORDER	÷

#### General Comments

- Samples(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.
- Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.
- Calibration was subcontracted to and analysed by Action United Environmental Services & Consulting.

#### Signatories

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

Signatories	Position	
Richard Fung	Managing Director	

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

All pages of this report have been checked and approved for release.

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

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

CLIENT

PROJECT

: HK2102507

<sup>1</sup> 1 <sup>1</sup> ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING :



ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK2102507-001	S/N: 366410	AIR	15-Jan-2021	S/N: 366410

## **Equipment Verification Report (TSP)**

#### **Equipment Calibrated:**

Туре:	Laser Dust monitor
Manufacturer:	Sibata LD-3B
Serial No.	366410
Equipment Ref:	EQ110
Job Order	HK2102507

#### **Standard Equipment:**

Standard Equipment:	Higher Volume Sampler
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018
Last Calibration Date:	8 October 2020

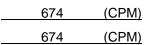
### Equipment Verification Results:

Testing Date:

31 December 2020

Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in mg/m <sup>3</sup> (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/60min)
2hr01min	09:16 ~ 11:17	10.9	1027.0	0.058	3158	26.1
2hr01min	11:19 ~ 11:20	10.9	1027.0	0.027	1608	13.3
2hr01min	11:22 ~ 13:23	10.9	1027.0	0.026	1107	9.2

Sensitivity Adjustment Scale Setting (Before Calibration) Sensitivity Adjustment Scale Setting (After Calibration)



#### 0.07 0.06 0.05 0.04 0.03 y = 0.0022x + 0.0016 0.02 $R^2 = 0.9791$ 0.01 0 5 10 15 20 25 30 0

## Linear Regression of Y or X Slope (K-factor):

Correlation Coefficient

0.0022	
0.9895	
8 January 2021	

#### Remarks:

### 1. Strong Correlation (R>0.8)

2. Factor 0.0022 should be apply for TSP monitoring

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



Location : Gold King Industrial Bu Location ID : Calibration Room	ilding, Kwai C	Chung	tion: 8-Oct-20 Date: 8-Jan-21	
	CON	DITIONS		
Sea Level Pressure (hPa) Temperature (°C)	1015.2 25.5		Corrected Pressure (mm H Temperature (K)	Hg) 761.4 299
	CALIBRA	TION ORIFICE		
Make Mode Calibration Date	l-> 5025A	]	Qstd Slope -> Qstd Intercept -> Expiry Date->	2.03014 -0.04616 7-Feb-21
	CALI	BRATION		
Plate H20 (L)H2O (R) H20 Qstd No. (in) (in) (in) (m3/m2		IC corrected	LINEAR REGRESSION	I
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	5         56           5         49           5         42           4         32	56.00 49.00 42.00 32.00 21.00	Slope = $38.$ Intercept = $-11.$	0056 6655 9991
<b>Calculations :</b> Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b] IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)] Qstd = standard flow rate IC = corrected chart respones I = actual chart response m = calibrator Qstd slope b = calibrator Qstd intercept Ta = actual temperature during calibration (	t deg K )	50.00	FLOW RATE CHART	
Pstd = actual pressure during calibration ( r For subsequent calculation of sampler flor 1/m(( I )[Sqrt(298/Tav)(Pav/760)]-b) m = sampler slope b = sampler intercept I = chart response Tav = daily average temperature Pav = daily average pressure	1	0.00	0.500 1.000 1. Standard Flow Rate (m3/min)	500 2.000

		PL.		-			RECALIB DUE D	
						F		
viro			100		1	L	February	1, 2021
	February 7,	/	Calibration C Rootsm		on Informat	ion Ta: 2		
Operator: . Calibration N	Jim Tisch	TE-5025A	Calik	orator S/N:	1612	Pa: 7	'45.5 mm	Hg
Calibration	10del #.	1E-3023A	Callu	rator s/in:	1012			
		Vol. Init	Vol. Final	ΔVol.	ΔTime	ΔΡ	ΔH	
	Run	(m3)	(m3)	(m3)	(min)	(mm Hg)	(in H2O)	
	1	1	2	1	1.3730	3.2	2.00	
	2	3	4	1	0.9820	6.4	4.00	
	3	5	6	1	0.8780	8.0	5.00	
	4	7	8	1	0.8340	8.8	5.50	
L.	5	9	10	1	0.6900	12.8	8.00	
ſ			D	Data Tabulat	tion			
	Vstd	Qstd	$\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)}$	)( <u>Tstd</u> )		Qa V	$\Delta H(Ta/Pa)$	
l	(m3)	(x-axis)	(y-axis		Va	(x-axis)	(y-axis)	
1	0.9866	0.7186	1.407		0.9957	0.7252	0.8896	
	0.9824	1.0004	1.990		0.9914	1.0096	1.2581	66
ŀ	0.9802	1.1165	2.225		0.9893	1.1267	1.4066	
ŀ	0.9792	1.1741	2.334		0.9882	1.1849	1.4753	
F	0.5755	1.4114 m=	2.015		0.9020	1.4244 m=	1.27124	
	QSTD	b=	-0.046		QA	b=	-0.02917	
	4515	r=	0.9999		Sec.	r=	0.99995	
ī				Calculation				
F	Vstd=	ΔVol(/Pa-ΔP	)/Pstd)(Tstd/Ta			ΔVol((Pa-ΔP)	(Pa)	
F		Vstd/ATime				Va/ATime	// 4/	
			For subseque	ent flow rat				
[	Qstd=	1/m (( \\ \[ \[ \] \  \  \  \  \  \  \  \  \  \  \  \  \	$\left(\begin{array}{c} Pa \\ \hline Pstd \end{array}\right)\left(\begin{array}{c} Tstd \\ \hline Ta \end{array}\right)$	))-b)		//	(Ta/Pa))-b)	
		Conditions						-
Tstd:	298.15					RECALI	BRATION	
Pstd:		mm Hg Key			US EPA reco	ommends and	nual recalibration pe	r 1998
ΔH: calibrato			n H2O)				egulations Part 50 to	
		eter reading					Reference Method fo	
ΔP: rootsmet								
ΔP: rootsmet Ta: actual abs Pa: actual bas	solute temp				Determinat	ion of Suspen	nded Particulate Ma	tter in

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# Appendix H

# **Database of Monitoring Results**

### Air Quality – 24 Hour TSP

24-hour TSP	24-hour TSP Monitoring Data for AM2a														
DATE	SAMPLE NUMBER			CHART READING			AVG TEMP	AVG AIR PRESS	STANDARD FLOW RATE	AIR VOLUME	FILTER WEIGHT (g)		DUST WEIGHT COLLECTED	24-nr 15P	
	NUMBER	INITIAL	TALFINAL(min)		MIN MAX AVG (°C)		(hPa)	(m <sup>3</sup> /min)	(std m <sup>3</sup> )	INITIAL	FINAL	(g)	$(\mu g/m^3)$		
6-Oct-21	27541	24877.76	24901.76	1440.00	38	39	38.5	26.7	1012.5	1.07	1544	2.6946	2.8146	0.1200	78
12-Oct-21	27565	24901.76	24925.77	1440.60	38	39	38.5	26.2	1013.4	1.07	1546	2.6977	2.8177	0.1200	78
18-Oct-21# Power Failure															
25-Oct-21#	27591	24949.77	24973.77	1440.00	38	39	38.5	25	1014.8	1.08	1550	2.7267	2.8336	0.1069	69
29-Oct-21	27488	24973.77	24997.78	1440.60	38	39	38.5	24.2	1016.4	1.08	1554	2.7204	2.8459	0.1255	81
24-hour TSP	Monitoring	; Data for A	M5												
DATE	SAMPLE NUMBER	ELA	APSED TIN	ИE		CHAR' EADIN		AVG TEMP	AVG AIR PRESS	STANDARD FLOW RATE	AIR VOLUME	FILTER WEIGHT (g)		DUST WEIGHT COLLECTED	24-hr TSP
	NUNIDER	INITIAL	FINAL	(min)	MIN	MAX	AVG	(°C)	(hPa)	(m <sup>3</sup> /min)	(std m <sup>3</sup> )	INITIAL	FINAL	(g)	$(\mu g/m^3)$
6-Oct-21	27542	18496.89	18520.89	1440.00	42	44	43.0	26.7	1012.5	1.05	1505	2.6975	2.9293	0.2318	154
12-Oct-21	27564	18520.89	18544.89	1440.00	44	48	46.0	26.2	1013.4	1.16	1665	2.7072	2.9659	0.2587	155
18-Oct-21	27570	18544.89	18568.89	1440.00	44	46	45.0	25.4	1014.5	1.12	1617	2.6810 2.7424		0.0614	38
23-Oct-21	27600	18568.89	18592.89	1440.00	44	48	46.0	25	1014.8	1.16	1672	2.7143 2.8939		0.1796	107
29-Oct-21	27487	18592.89	18616.89	1440.00	44	48	46.0	24.2	1016.4	1.18	1700	2.7249	3.0204	0.2955	174

# 24-Hour TSP monitoring at AM2a on 18 and 23 October 2021 were failure due to power supply issue. The 24-Hour TSP monitoring at AM2a were resumed on 25 October 2021.





#### **Construction Noise**

Daytime No	ise Mea	asureme	ent Resu	ults (dB)	at CNI	MS1														
	Start	1st	Leq (5n	nin)	2nd	Leq (51	min)	3rd	Leq (51	min)	4th	Leq (5n	nin)	5th	Leq (5r	nin)	6th	Leq (5r	nin)	
Date	Time	Leq, dB(A)		L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq30min, dB(A)												
8-Oct-21	9:12	65.4	67.0	61.5	66.2	68.5	62.5	67.1	69.5	62.0	66.7	69.0	62.5	66.1	68.5	61.5	67.8	70.0	63.5	66.6
15-Oct-21*	9:24	70.9	76.0	60.0	73.5	76.5	65.0	68.6	69.0	57.5	60.8	63.0	55.5	65.3	70.0	57.0	63.2	66.5	55.5	69.1
19-Oct-21	13:07	70.5	56.5	67.1	71.5	53.0	65.9	70.5	55.0	66.9	71.5	55.5	66.2	70.0	54.5	68.2	72.5	57.5	66.9	71.2
25-Oct-21	10:49	59.0	59.9	57.0	61.5	65.4	55.8	67.8	64.8	54.8	58.8	60.3	56.6	59.5	61.7	55.7	60.2	62.3	55.0	62.6
Daytime No	Daytime Noise Measurement Results (dB) at CNMS2																			
	Start	1st	Leq (5n	nin)	2nd	Leq (51	min)	3rd	Leq (51	min)	4th	Leq (5n	nin)	5th	Leq (5r	nin)	6th	Leq (5r	nin)	
Date	Time	Leq, dB(A)		L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq30min, dB(A)												
8-Oct-21	9:51	68.1	70.5	62.5	69.3	71.5	61.5	68.2	69.5	62.0	68.9	70.5	62.5	70.7	72.5	63.0	65.6	67.5	61.5	68.7
15-Oct-21*	10:13	68.2	70.2	65.3	70.2	72.7	66.3	68.5	69.8	67.2	66.7	67.7	65.6	65.7	66.8	64.3	67.1	68.3	65.8	68.0
19-Oct-21	13:47	72.7	77.0	52.5	68.8	62.5	53.0	58.7	61.5	55.5	60.2	63.0	56.0	62.0	64.0	57.5	66.5	66.5	55.0	67.5
25-Oct-21	11:32	56.8	57.3	54.0	56.0	57.8	54.4	57.8	59.9	54.5	56.5	58.2	54.0	58.3	60.3	55.8	56.2	58.1	54.7	57.0
Daytime No	ise Mea	asureme	ent Resi	ilts (dB)	at CNI	MS5														
	Start	1st	Leq (5n	nin)	2nd	Leq (5)	min)	3rd	Leq (51	min)	4th	Leq (5n	nin)	5th	Leq (5r	nin)	6th	Leq (5r	nin)	
Date	Time	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq30min, dB(A)															
8-Oct-21	10:37	66.2	69.5	62.5	67.7	70.0	62.0	68.4	70.5	62.0	68.6	71.5	63.0	66.8	68.5	62.5	69.4	72.5	63.0	68.0
15-Oct-21*	11:59	65.3	68.0	63.0	66.6	70.0	64.0	68.3	71.0	65.5	65.9	68.5	63.0	63.6	66.5	62.0	68.8	71.5	64.5	66.8
19-Oct-21	14:31	64.3	67.0	62.0	65.6	69.0	63.0	67.3	70.0	64.5	64.9	67.5	62.0	62.6	65.5	61.0	67.8	70.5	63.5	65.8
25-Oct-21	9:59	64.8	67.3	60.3	63.2	66.1	60.3	65.7	68.1	61.0	64.2	67.5	60.1	63.3	65.5	59.0	64.3	67.5	60.7	64.3

\* Noise monitoring on 13 October 2021 was cancelled due to adverse weather condition (Typhoon Signal No.8 inforce) and rescheduled to 15 October 2021.

						thane (%)	g Results (	Wan O Road) Ox		Carbon Dioxide (%)			
Monitoring	Date	Time	Weather	Temperature (°C)		Action	Limit	Measurement	ygen (%) Action	Limit	Measurement	Action	Limit
Location	Dutt	Time	vv cutifer	remperature (°C)	Result	Level	Level	Result	Level	Level	Result	Level	Level
	10/2/2021	8:30		28	0	10	20		19	18		0.5	15
	10/2/2021	14:00	i Sunnv	33	0	10	20	20.7	19	18	0	0.5	1.5
	10/4/2021	8:30		28	0	10	20	20.7	19	18	0	0.5	1.5
	10/4/2021	14:00	Sunny	33	0	10	20	20.7	19	18	0	0.5	1.5
	10/5/2021	8:30		29	0	10	20	20.7	19	18	0	0.5	1.5
	10/5/2021	14:00	Cloudy	33	0	10	20	20.7	19	18	0	0.5	1.5
	10/5/2021	8:30		28	0	10	20	20.7	19	18	0	0.5	1.5
	10/6/2021	14:00	Cloudy	33	0	10	20	20.8	19	18	0	0.5	1.5
	10/7/2021	8:30		25	0	10	20	20.8	19	18	0	0.5	1.5
	10/7/2021	14:00	i Kam	30	0	10	20	20.7	19	18	0	0.5	1.5
	10/7/2021	8:30		25	0	10	20	20.0	19	18	0	0.5	1.5
	10/8/2021	14:00	Rain	23	0	10	20	20.7	19	18	0	0.5	1.5
				27	0						0		
	10/9/2021	8:30	i Kam	23	0	10	20	20.7	19	18	0	0.5	1.5
	10/9/2021	14:00			0	10	20	20.7	19	18	0	0.5	1.5
	10/11/2021	8:30	Sunny	26	0	10	20	20.7	19	18	0	0.5	1.5
	10/11/2021	14:00		33	0	10	20	20.7	19	18	0	0.5	1.5
	10/12/2021	8:30	Sunny	24	0	10	20	20.6	19	18	0	0.5	1.5
	10/12/2021	14:00		27	0	10	20	20.6	19	18	0	0.5	1.5
	13/10/2021	8:30	Rain	23	0	10	20	20.6	19	18	0	0.5	1.5
	13/10/2021	14:00	Rain	27	0	10	20	20.7	19	18	0	0.5	1.5
	14/10/2021	8:30		26	0	10	20	20.7	19	18	0	0.5	1.5
	14/10/2021	14:00		30	0	10	20	20.7	19	18	0	0.5	1.5
	15/10/2021	8:30	Cloudy	25	0	10	20	20.7	19	18	0	0.5	1.5
Wan O Road	15/10/2021	14:00		28	0	10	20		19	18		0.5	1.5
	16/10/2021	8:30	1 (	24	0	10	20		19	18		0.5	1.5
	16/10/2021	14:00		30	0	10	20		19	18		0.5	1.5
	18/10/2021	8:30	i Sunnv	21	0	10	20		19	18		0.5	1.5
	18/10/2021	14:00		28	0	10	20	20.7	19	18		0.5	1.5
	19/10/2021	8:30	i Sunnv	24	0	10	20		19	18		0.5	1.5
	19/10/2021	14:00		29	0	10	20		19	18		0.5	1.5
	20/10/2021	8:30	Sunny	25	0	10	20		19	18		0.5	1.5
	20/10/2021	14:00		30	0	10	20		19	18		0.5	1.5
	21/10/2021	8:30	i Sunnv	20	0	10	20		19	18	0	0.5	1.5
	21/10/2021	14:00		28	0	10	20		19	18	0	0.5	1.5
	23/10/2021	8:30	i Ciouav	18	0	10	20		19	18		0.5	1.5
	23/10/2021	14:00		23	0	10	20	20.7	19	18	0	0.5	1.5
	25/10/2021	8:30	1 Sumiv	19	0	10	20		19	18	0	0.5	1.5
	25/10/2021	14:00		21	0	10	20		19	18	0	0.5	1.5
	26/10/2021	8:30	1 Sumiv	23	0	10	20	20.7	19	18	0	0.5	1.5
	26/10/2021	14:00		25	0	10	20		19	18		0.5	1.5
	27/10/2021	8:30	i Sunnv	25	0	10	20	20.7	19	18	0	0.5	1.5
	27/10/2021	14:00		27	0	10	20		19	18	0	0.5	1.5
	28/10/2021	8:30	1 Sunnv	24	0	10	20		19	18		0.5	1.5
	28/10/2021	14:00	Sumry	28	0	10	20	20.7	19	18	0	0.5	1.5

Landfill Gas Monitoring Results (Wan O Road)

29/10/2021	8:30	Suppy	24	0	10	20	20.7	19	18	0	0.5	1.5
29/10/2021	14:00	Sunny	28	0	10	20	20.7	19	18	0	0.5	1.5
30/10/2021	8:30	Sunny	23	0	10	20	20.7	19	18	0	0.5	1.5
30/10/2021	14:00	Sumry	26	0	10	20	20.7	19	18	0	0.5	1.5

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



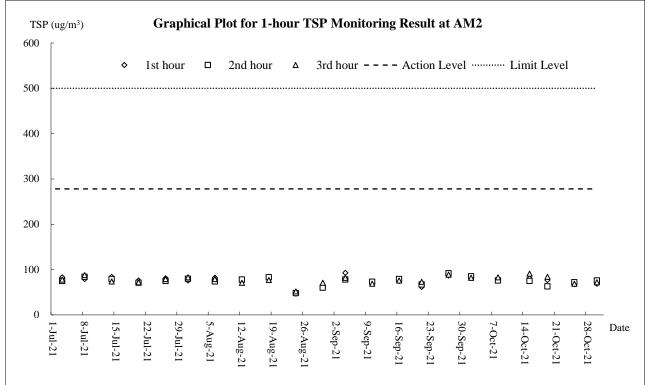
Appendix I

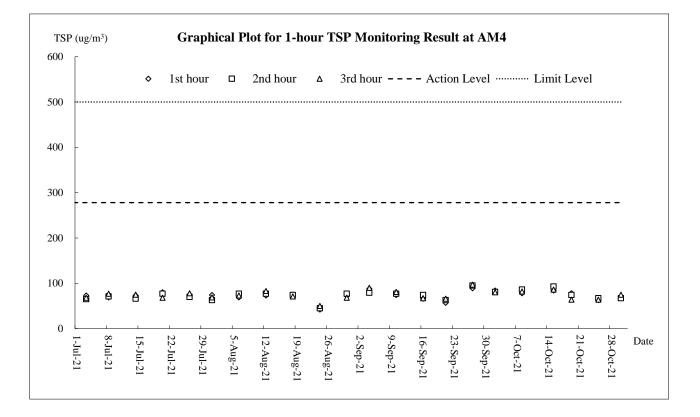
**Graphical Plots of Monitoring Results** 

#### CEDD Contract Agreement No. EDO/04/2018 -Environmental Team for Cross Bay Link, Tseung Kwan O Monthly Environmental Monitoring & Audit Report – October 2021



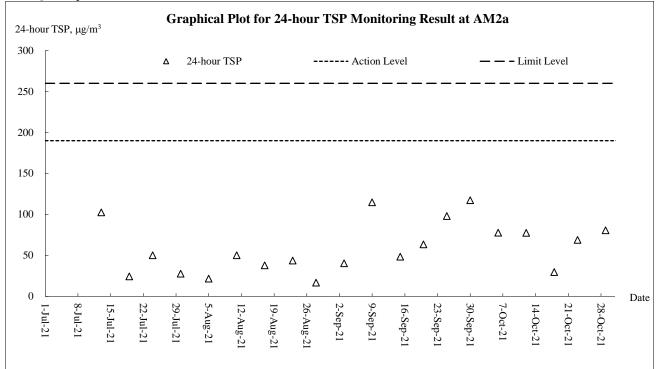
#### Air Quality – 1 Hour TSP

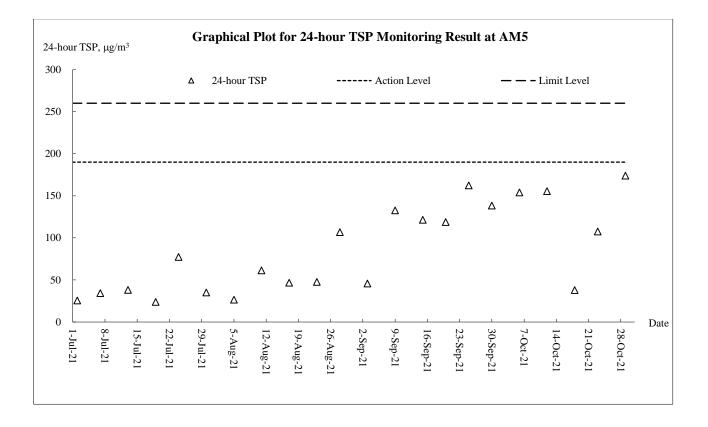






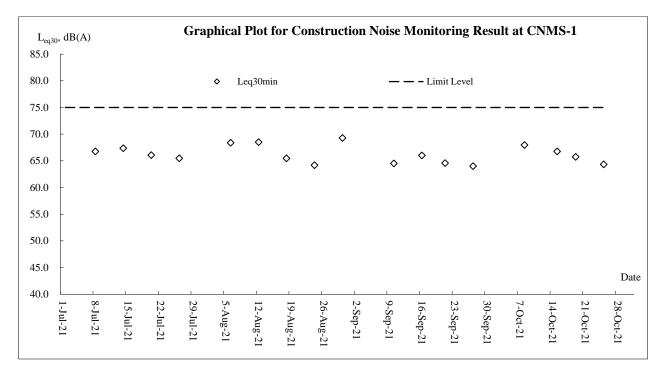
#### Air Quality - 24-Hour TSP

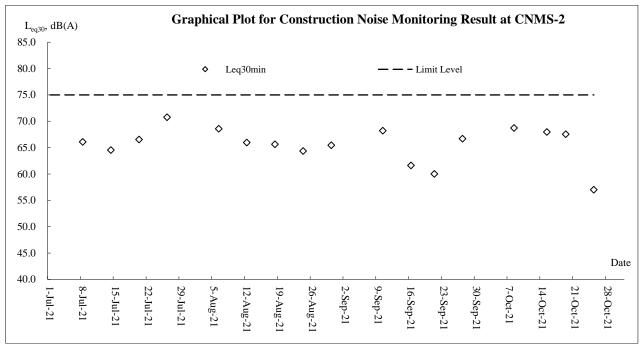




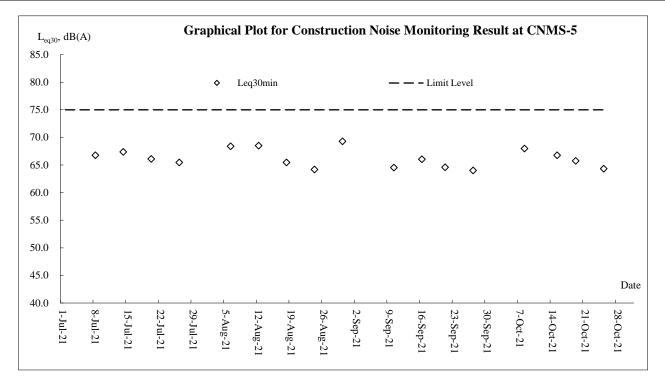


## **Construction Noise**











Appendix J

**Meteorological Data** 

#### CEDD Contract Agreement No. EDO/04/2018 -Environmental Team for Cross Bay Link, Tseung Kwan O Monthly Environmental Monitoring & Audit Report – October 2021



				Tseung Kwan O Station					
Date		Weather	Total Rainfall (mm)	Mean Air Temp. (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction (degree)		
1-Oct-21	Fri	Hot with sunny periods on Thursday.	Trace	30.4	10.5	81	E/NE		
2-Oct-21	Sat	Moderate to fresh easterly winds	0	28.9	7.7	79.5	E/NE		
3-Oct-21	Sun	Hot and dry during the day tomorrow.	1.9	27.8	8.2	78	SE		
4-Oct-21	Mon	Mainly cloudy with a few showers.	0	29	7.5	71.5	E/NE		
5-Oct-21	Tue	Sunny intervals during the day.	Trace	29.4	11.5	71	E/NE		
6-Oct-21	Wed	Fresh east to northeasterly winds	Trace	28.7	10.7	66	E/NE		
7-Oct-21	Thu	Moderate easterly winds	43.9	27	15	75.7	N/NE		
8-Oct-21	Fri	Sunny periods in the afternoon.	329.7	25.3	10.2	96.5	E/SE		
9-Oct-21	Sat	Moderate east to northeasterly winds.	130.3	26.2	9	89	S/SE		
10-Oct-21	Sun	Moderate northeasterly winds.	45.1	28.3	6.2	87	S/SE		
11-Oct-21	Mon	Cloudy periods tonight.	0	28.3	9	72.5	E/NE		
12-Oct-21	Tue	occasionally fresh offshore at first.	0.2	24	21.0	65.5	N/NE		
13-Oct-21	Wed	Moderate easterly winds	57.7	24.1	17.0	75.0	E/NE		
14-Oct-21	Thu	Sunny periods in the afternoon.	13.3	27.6	8.0	87.0	E/NE		
15-Oct-21	Fri	Moderate east to northeasterly winds.	4.6	24.7	6.7	91.2	E/NE		
16-Oct-21	Sat	Moderate northeasterly winds.	Trace	26.4	10.5	81	N/NE		
17-Oct-21	Sun	Cloudy periods tonight.	0	23.5	9.5	67	E/NE		
18-Oct-21	Mon	Mainly fine in the afternoon.	0	23.1	8.2	68.2	E/NE		
19-Oct-21	Tue	Mainly fine and dry.	0	24.7	7	78.5	E/NE		
20-Oct-21	Wed	Mainly cloudy tonight.	0.1	26.2	8	77.5	SE		
21-Oct-21	Thu	Moderate north to northeasterly winds	0.7	23.5	6.2	84	E/NE		
22-Oct-21	Fri	occasionally fresh offshore at first.	Trace	20.2	9.2	83.5	E/NE		
23-Oct-21	Sat	Becoming fine and dry.	0	20.2	8.7	75.7	E/NE		
24-Oct-21	Sun	Sunny periods in the afternoon.	0	22.5	9.5	66.2	EN/E		
25-Oct-21	Mon	Moderate east to northeasterly winds.	0	23	7.5	64.7	E/NE		
26-Oct-21	Tue	Moderate northeasterly winds.	0	24.2	7.5	69.2	E/NE		
27-Oct-21	Wed	Cloudy periods tonight.	Trace	25	8.2	77.5	E/NE		
28-Oct-21	Thu	Mainly fine in the afternoon.	0.1	25	8	79.2	N/NE		
29-Oct-21	Fri	Moderate easterly winds, fresh offshore at first.	1.1	25.5	8.5	74.2	E/NE		
30-Oct-21	Sat	Cloudy periods tonight.	2.4	23.8	7.7	72	E/NE		
31-Oct-21	Sun	Mainly fine in the afternoon.	0	23.7	6	72.5	E/NE		



Appendix K

Waste Flow Table



**Contract 1** 

 $Z: \label{eq:loss} 2018 \ CS00975 \ (EDO-04-2018) \ (600 \ EM\&A \ Report \ Submission \ Monthly \ EM\&A \ Report \ 2021 \ Cotober \ 2021 \ R0582v2. \ docx \ R0582v2. \ docx \ R0582v2. \$ 

# Monthly Summary Waste Flow Table for <u>2021</u> (year)

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

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

		Actual Quantit	ies of Inert C&	D Materials Gei	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 <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	$(in '000 m^3)$
Jan	0.132	0.000	0.000	0.000	0.132	0.000	0.000	0.113	0.000	0.000	0.399
Feb	0.108	0.000	0.000	0.000	0.108	0.000	0.000	0.186	0.000	0.000	0.351
Mar	0.060	0.000	0.000	0.000	0.060	0.000	0.000	0.099	0.000	0.000	0.512
Apr	0.018	0.000	0.000	0.000	0.018	0.000	0.000	0.121	0.000	0.000	0.283
May	0.576	0.000	0.000	0.000	0.576	0.000	0.000	0.103	0.000	0.000	0.278
Jun	1.170	0.000	0.000	0.000	1.170	0.000	0.000	0.210	0.000	0.000	0.437
Sub-total	2.064	0.000	0.000	0.000	2.064	0.000	0.000	0.832	0.000	0.000	2.259
Jul	0.060	0.000	0.000	0.000	0.060	0.000	0.000	0.155	0.000	0.000	0.204
Aug	0.018	0.000	0.000	0.000	0.018	0.000	0.000	0.170	0.000	0.000	0.157
Sep	0.066	0.000	0.000	0.000	0.066	0.000	0.000	0.141	0.000	0.000	0.284
Oct	0.036	0.000	0.000	0.000	0.036	0.000	0.000	0.151	0.000	0.000	0.211
Nov	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Dec	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	2.244	0.000	0.000	0.000	2.244	0.000	0.000	1.449	0.000	0.000	3.116

Contract No.: NE/2017/07

Note:

1. For non-inert portion of C&D material, assume the density of 1 m<sup>3</sup> general refuse is equal to 200 kg.

2. For inert portion of C&D material, assume  $6 \text{ m}^3$  per each full-filled dump truck.

3. All values are round off to the third decimal places.



**Contract 2** 

 $Z: \label{eq:loss} 2018 \ CS00975 \ (EDO-04-2018) \ (600 \ EM\&A \ Report \ Submission \ Monthly \ EM\&A \ Report \ 2021 \ Cotober \ 2021 \ R0582v2. \ docx \ R0582v2. \ docx \ R0582v2. \$ 

		Actual Qua	ntities of Inert C&I	O Materials Generat	ted 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 <sup>3</sup> ]	[in '000m <sup>3</sup> ]	[in '000m <sup>3</sup> ]	[in '000m <sup>3</sup> ]	[in '000m <sup>3</sup> ]	[in '000m <sup>3</sup> ]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000m <sup>3</sup> ]	
Jan	1.685	0.000	0.000	0.000	1.685	0.744	0.005	0.050	0.020	0.000	0.032	
Feb	0.244	0.000	0.000	0.000	0.244	0.307	0.005	0.050	0.020	0.000	0.011	
Mar	2.449	0.000	0.000	0.000	2.449	0.000	0.006	0.070	0.030	0.000	0.026	
Apr	2.634	0.000	0.000	0.000	2.634	0.000	0.006	0.050	0.020	0.000	0.026	
May	0.390	0.000	0.000	0.000	0.390	0.000	0.003	0.100	0.020	0.000	0.044	
June	0.287	0.000	0.000	0.000	0.287	0.000	0.002	0.150	0.030	0.000	0.009	
SUB- TOTAL	7.689	0.000	0.000	0.000	7.689	1.051	0.027	0.470	0.140	0.000	0.147	
Jul	0.147	0.000	0.000	0.000	0.147	0.000	0.002	0.150	0.030	0.000	0.019	
Aug	0.284	0.000	0.000	0.000	0.284	0.000	0.005	0.100	0.005	0.000	0.035	
Sep	0.310	0.000	0.000	0.000	0.310	0.000	0.000	0.050	0.000	0.000	0.086	
Oct	0.256	0.000	0.000	0.000	0.256	0.000	0.000	0.000	0.000	0.000	0.023	
Nov												
Dec												
TOTAL	8.685	0.000	0.000	0.000	8.685	1.051	0.034	0.770	0.175	0.000	0.310	

Monthly Summary Waste Flow Table for 2021 Year

Note: Conversion to 1000m<sup>3</sup> for general refuse is weight in 1000kg multiply by 0.002

Conversion to 1000m<sup>3</sup> 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<sup>3</sup>



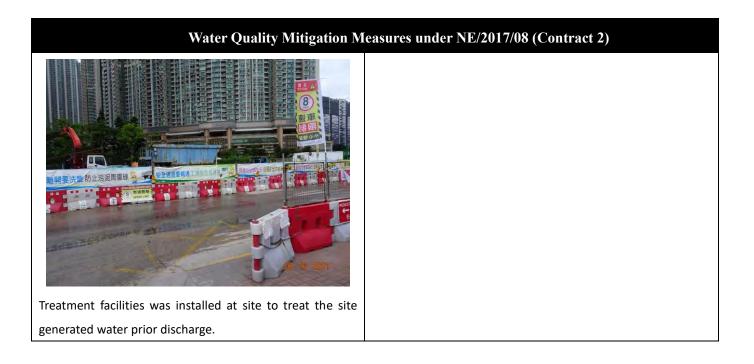
Appendix L

## Implementation Record of Water Mitigation Measures in the Reporting Month

## Water Quality Mitigation Measures under NE/2017/07 (Contract 1)



generated water prior discharge.





Appendix M

Implementation Schedule for Environmental Mitigation Measures

		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
Dust Impa	ct (Contraction Phase)		•			-
S5.5.5.1	Regular watering under good site practice shall be adopted. In accordance with the "Control of Open Fugitive Dust Sources" (USEPA AP-42), watering once per hour on exposed worksites and haul road is recommended to achieve dust removal efficiency of 91.7%.	Good construction site practices to control the dust impact on the nearby sensitive receivers to within the relevant criteria	All construction sites	Contractor	Construction stage	<ul> <li>APCO (Cap. 311); and</li> <li>Air Pollution Control (Construction Dust) Regulation</li> </ul>
S5.5.3	<ul> <li>The following dust suppression measures shall also be incorporated by the Contractor to control the dust nuisance throughout the construction phase:</li> <li>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;</li> <li>Any dusty materials remaining after a stockpile is removed shall be wetted with water and cleared from the surface of roads;</li> <li>A stockpile of dusty material shall not extend beyond the pedestrian barriers, fencing or traffic cones;</li> <li>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;</li> <li>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 facilities and the exit point shall be paved with concrete, bituminous materials or hardcores;</li> <li>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 site that is within 30m of a vehicle entrance or exit shall be kept clear</li> </ul>	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	<ul> <li>APCO (Cap. 311); and</li> <li>Air Pollution Control (Construction Dust) Regulation</li> </ul>

		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
	<ul> <li>of dusty materials;</li> <li>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;</li> <li>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;</li> <li>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;</li> <li>Any skip hoist for material transport shall be totally enclosed by impervious sheeting;</li> <li>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.</li> </ul>					
\$5.5.5.4	<ul> <li>For the barging facilities at the site compound, the following good site practice is required:</li> <li>All road surfaces within the barging facilities shall be paved.</li> <li>Vehicles should pass through designated wheel wash facilities.</li> <li>Continuous water spray shall be installed at the loading point.</li> </ul>	Good construction site practices to control the dust impact on the nearby sensitive receivers to within the relevant criteria	Site compound	Contractor	Construction stage	<ul> <li>APCO (Cap. 311); and</li> <li>Air Pollution Control (Construction Dust) Regulation</li> </ul>
S5.5.5.5	An audit and monitoring programme during the construction phase should be implemented by the Contractor to ensure that the construction dust impacts are controlled to within the HKAQO. Detailed requirements for the audit and monitoring programmes are given separately in the EM&A manual.	Monitor the 1-Hour and 24-Hr TSP levels at the representative dust monitoring stations to ensure compliance with relevant criteria throughout the construction period	Selected representative dust monitoring station (Drawing no. 209506/EMA/ AIR/001)	Contractor	Construction stage	<ul> <li>APCO (Cap. 311); and</li> <li>Air Pollution Control (Construction Dust) Regulation</li> </ul>

		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	
S6.6.4.3	<ul> <li>Good site practice and noise management techniques:</li> <li>Only well-maintained plant shall be operated on-site and the plant shall be serviced regularly during the construction programme;</li> <li>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;</li> <li>Plant known to emit noise strongly in one direction, where possible, shall be orientated so that the noise is directed away from nearby NSRs;</li> <li>Silencers or mufflers on construction equipment shall be properly fitted and maintained during the construction works;</li> <li>Mobile plant shall be sited as far away from NSRs as possible and practicable; and</li> <li>Material stockpiles, site office and other structures shall be effectively utilised, where practicable, to screen noise from on-site construction activities.</li> </ul>	To minimize construction noise impact arising from the Project on the affected NSRs	All construction sites	Contractor	Construction stage	• Annex 5, TM-EIAO	
S6.6.4.5-6	Use of quiet powered mechanical equipment and working methods	Reduce noise levels of plant items	All construction sites	Contractor	Construction stage	• Annex 5, TM-EIAO	
S6.6.4.7	Install site hoarding at the site boundaries between noisy construction activities and NSRs	Reduce the construction noise levels at low-level zone of NSRs through partial screening	All construction sites	Contractor	Construction stage	• Annex 5, TM-EIAO	
S6.6.4.8-11	Use of temporary or movable noise barriers and full enclosure for relatively fixed plant source	Screen the noisy plant items to be used at all construction sites	For plant items listed in Table 6.7 and Appendix 6.1 of the EIA report at all construction sites	Contractor	Construction stage	• Annex 5, TM-EIAO	
	Implement a noise monitoring programme under the EM&A manual	Monitor the construction noise levels at the selected representative locations	Selected representative noise monitoring stations ( <b>Drawing no.</b> 209506/EMA/NS/001 & 209506/EMA/NS/002)	Contractor	Construction stage	• Annex 5, TM-EIAO	
\$6.7.3.1	Partial enclosures along Road D9 and application of low noise surfacing material along CBL and Road D9	To minimize road traffic noise impact arising from the CBL and Road D9 on the affected NSRs	CBL and Road D9           (Drawing no.           209506/EMA/NS/003)	CEDD/ Contractor	During operational stage	• Annex 5, TM-EIAO	

		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
	lity Impact (Contraction Phase)					
S8.6.4.3	<ul> <li>Marine Piling and Pile Excavation Works Marine piling and pile excavation works shall be undertaken in such a manner as to minimize re-suspension of sediments. Standard good practice measures shall be implemented, including the following requirements:</li> <li>All marine piling and pile excavation works shall be conducted within a floating single silt curtain.</li> <li>Mechanical closed grabs (with a size of5m3) shall be designed and maintained to avoid spillage and should seal tightly while being lifted.</li> <li>Barges shall have tight fitting seals to their bottom openings to prevent leakage of material.</li> <li>Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes.</li> <li>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.</li> <li>Excess material shall be cleaned from the decks and exposed fittings of barges before the vessel is moved.</li> <li>Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action.</li> <li>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.</li> <li>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.</li> </ul>	To control potential impacts from marine piling and pile excavation works	During marine piling and pile excavation works	Contractor	Construction stage	TM-EIAO; and     WPCO
S8.6.4.4	<ul> <li>Construction Site Runoff</li> <li>In accordance with the Practice Note for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN 1/94), construction phase mitigation measures, where appropriate, shall include the following:</li> <li>The design of efficient silt removal facilities shall be based on the guidelines in Appendix A1 of ProPECC PN 1/94. The</li> </ul>	Control potential water quality impacts from construction site run-off	All construction sites	Contractor	Construction stage	<ul><li>TM-EIAO; and</li><li>WPCO</li></ul>

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the • Op agg be Me cor wai • All cor is c site cor hav wee pro fro: wit pre roa • Coi col qua • All cor · · · · · · · · · · · · · · · · · · ·	nvironmental Protection Measures/ Mitigation Measures	Recommended Measures & Main Concerns to Address	Location/ Timing	Agent	Stage	and/or Standards to be Achieved
sha	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					
S8.6.4.6 Sewag • Por pro	meander, wetlands and fish ponds. wage from workforce Portable chemical toilets and sewage holding tanks shall be provided for handling the construction sewage generated by the workforce;	Control potential water quality impacts from sewage	All construction sites	Contractor	Construction stage	<ul><li>TM-EIAO; and</li><li>WPCO</li></ul>

		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 ( <b>Drawing no.</b> 209506/EMA/WQ/001)	Contractor	Construction station	<ul><li>TM-EIAO; and</li><li>WPCO</li></ul>	
\$8.7.3.2	<b>Operational phase – Runoff from road surface</b> 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	<ul><li>TM-EIAO; and</li><li>WPCO</li></ul>	
Waste Mar	nagement (Contraction Phase)						
\$9.5.2	<ul> <li>Good Site Practices</li> <li>Recommendations for good site practices:</li> <li>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;</li> <li>Training of site personnel in proper waste management and chemical handling procedures;</li> <li>Provision of sufficient waste disposal points and regular collection for disposal;</li> <li>Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Centre;</li> <li>Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and</li> <li>Implementation of a recording system for the amount of wastes generated/recycled and disposal sites.</li> </ul>	Good site practices which ensure waste generated during construction phase is properly managed	All construction sites	Contractor	Construction stage	<ul> <li>Waste Disposal Ordinance (Cap. 54);</li> <li>ETWB TCW No. 19/2005</li> </ul>	

		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
\$9.5.4	<ul> <li>Waste Reduction Measures Recommendations for achieving waste reduction include: <ul> <li>On-site reuse of any material excavated as far as practicable;</li> <li>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;</li> <li>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;</li> <li>Recycling of any unused chemicals and those with remaining functional capacity as far as possible;</li> <li>Prevention of the potential damage or contamination to the construction materials though proper storage and good site practices;</li> <li>Planning and stocking of construction materials should be made carefully to minimize amount of waste generated avoid unnecessary generation of waste; and</li> <li>Training on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling should be provided to workers.</li> </ul> </li> </ul>	To reduce amount of waste generated during construction phase	All construction sites	Contractor	Construction stage	<ul> <li>Waste Disposal Ordinance (Cap. 54);</li> <li>ETWB TCW No. 19/2005</li> </ul>
\$9.5.5-6	<ul> <li>Storage, Collection and Transportation of Waste Recommendations for proper storage include:</li> <li>Waste such as soil should be handled and stored well to ensure secure containment;</li> <li>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</li> <li>Different locations should be designated to stockpile each material to enhance reuse.</li> <li>With respect to the collection and transportation of waste from the construction works, the following is recommended:</li> <li>Remove waste in a timely manner;</li> <li>Employ trucks with cover or enclosed containers for waste transportations;</li> <li>Obtain relevant waste disposal permits from the appropriate</li> </ul>	To reduce the environmental implications of improper storage	All construction sites	Contractor	Construction stage	<ul> <li>Waste Disposal Ordinance (Cap. 54);</li> <li>ETWB TCW No. 19/2005</li> </ul>

		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	
	<ul><li>authorities; and</li><li>Disposal of waste should be done at licensed waste disposal facilities.</li></ul>					Se richie (ed	
S9.5.8-11	<ul> <li>facilities.</li> <li>C&amp;D Materials The following mitigation measures shall be implemented in handling the waste: <ul> <li>Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement;</li> <li>Carry out on-site sorting;</li> <li>Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate;</li> <li>Implement a trip-ticket system for each works contract to ensure that the disposal of C&amp;D materials are properly documented and verified;</li> <li>Disposal of the C&amp;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;</li> <li>Standard formwork or pre-fabrication order to minimise the arising of C&amp;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 <ul> <li>The Contractor should recycle as much of the C&amp;D materials as possible on-site. Public fill and C&amp;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.</li> </ul></li></ul></li></ul>	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	<ul> <li>Waste Disposal Ordinance (Cap. 54);</li> <li>ETWB TCW No. 19/2005</li> <li>ETWB TCW No. 06/2010</li> </ul>	
\$9.5.13	<ul> <li>Excavated Marine Sediments</li> <li>During transportation and disposal of the excavated marine sediments, the following measures shall be taken to minimize potential environmental impacts:</li> <li>Bottom opening of barges should be fitted with tight fitting</li> </ul>	To minimize potential impacts on water quality	All construction sites where applicable	Contractor	Construction stage	• ETWBTC (Works) No. 34/2002	

		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
	<ul> <li>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;</li> <li>Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation;</li> <li>Transport barges or vessels should be equipped with automatic self-monitoring devices as specified by the DEP; and</li> <li>Barges should not be filled to a level that would cause the overflow of materials or sediment-laden water during loading or transportation.</li> </ul>					
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:					Code of Practice on the Packaging, Labelling and Storage of Chemical Waste
	• Be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed;					
	<ul> <li>Have a capacity of less than 450 L unless the specification have been approved by EPD; and</li> <li>Display a label in English and Chinese in accordance with</li> </ul>					
	instructions prescribed in Schedule 2 of the Regulations.					
	<ul> <li>The storage area for chemical wastes shall:</li> <li>Be clearly labelled and used solely for the storage of chemical wastes;</li> </ul>					
	<ul> <li>Be enclosed on at least 3 sides;</li> <li>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;</li> </ul>					

		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	
	<ul> <li>Have adequate ventilation;</li> <li>Be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste, if necessary); and</li> <li>Be arranged so that incompatible materials are adequately separated.</li> <li>Disposal of chemical waste shall:</li> <li>Be via a licensed waste collector; and</li> <li>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</li> <li>Be to a re-user of the waste, under approval from EPD.</li> </ul>					beneficier	
\$9.5.18	Sewage An adequate number of portable toilets shall be provided for the on-site construction workers. Any waste shall be transferred to a sewage treatment works by a licensed collector.	Proper handling of sewage from worker to avoid odour, pest and litter impacts	All construction sites	Contractor	Construction stage	• Waste Disposal Ordinance (Cap. 54)	
\$9.5.19	General Refuse General refuse generated on-site shall be stored in enclosed bins or compaction units separately from construction and chemical wastes. Recycling bins shall also be provided to encourage recycling. A reputable waste collector shall be employed by the Contractor to remove general refuse from the site on a daily basis separately from the construction and chemical wastes. Burning of refuse on construction sites is prohibited by law.	Minimize production of general refuse and avoid odour, pest and litter impacts	All construction sites	Contractor	Construction stage	• Waste Disposal Ordinance (Cap. 54)	
\$10.7.2.4	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	<ul><li>TM-EIAO; and</li><li>WPCO</li></ul>	
\$10.7.2.5	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	<ul><li>TM-EIAO; and</li><li>WPCO</li></ul>	
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 ( <b>Drawing no.</b> 209506/EMA/WQ/001)	Contractor	Construction stage	<ul><li>TM-EIAO; and</li><li>WPCO</li></ul>	

	T	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	
		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	<ul><li>TM-EIAO; and</li><li>WPCO</li></ul>	
\$11.6.2.3	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	<ul><li>TM-EIAO; and</li><li>WPCO</li></ul>	
\$11.8.1.1	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 ( <b>Drawing no.</b> 209506/EMA/WQ/001)	Contractor	Construction stage	<ul><li>TM-EIAO; and</li><li>WPCO</li></ul>	
Landscape	and Visual	•					
\$13.8.1.2	<ul> <li>The following mitigation measures should be implemented in the construction stage</li> <li>CM1 – The construction area and contractor's temporary works areas should be minimized to avoid impacts on adjacent landscape.</li> <li>CM2 – Reduction of construction period to practical minimum.</li> <li>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.</li> <li>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 stage).</li> </ul>	Minimize effects of landscape and visual impacts	Work site/during construction	Funded and implemented by CEDD	Construction stage		

		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
	<ul> <li>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.</li> <li>CM6 – Advance screen planting to proposed roads and associated structures.</li> <li>CM7 – hydroseeding or sheeting of soil stockpiles with visually unobtrusive material (in earth tone).</li> <li>CM8 – Screening of construction works by hoardings/noise barriers around works area in visually unobtrusive colours, to screen Works.</li> <li>CM9 – Control night-time lighting and glare by hooding all lights.</li> <li>CM10 – Ensure no run-off into water body adjacent to the Project Area.</li> <li>CM11 – Avoidance of excessive height and bulk of buildings and structures</li> </ul>					
\$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	of the proposed works	by CEDD. Maintained	Design, construction and operational stages	
\$13.8.1.2	<ul> <li>The following mitigation measures should be implemented in the operational stage:</li> <li>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.</li> <li>OM3 – Maximise soft landscape of the site, where space permits, roadside berms /slope treatment works should be created.</li> <li>OM4 – During detailed design, refine structure layout to create a planting strips along the roads to enhance greenery.</li> <li>OM5 – Use appropriate (visually unobtrusive and</li> </ul>	Minimize effects of landscape and visual impacts	and operation	Funded and implemented by CEDD. Maintained by CEDD and LCSD.	construction and operational	

		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
	<ul> <li>non-reflective) building materials and colours, and aesthetic design in built structures.</li> <li>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.</li> <li>OM7 – Avoidance of excessive height and bulk of buildings and structures</li> </ul>					
Landfill G				G	Guntari	I 1011 0
S14.7.5	<ul> <li>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.</li> <li>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.</li> <li>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.</li> <li>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.</li> <li>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.</li> <li>Enhanced personal hygiene practices including washing thoroughly after working and eating only in "clean" areas shall be adopted where contact may have been made with any groundwater which is thought to be contaminated with</li> </ul>	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		Implem	entation	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 responsibility for suspending the work in the event of					

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
	<ul> <li>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.</li> <li>During the construction works, adequate fire extinguishers and breathing apparatus sets shall be made available on site and appropriate training given in their use.</li> </ul>					
\$14.7.6	<ul> <li>Landfill gas monitoring The following monitoring shall be undertaken when construction works are carried out in confined space within the 250m Consultation Zone: <ul> <li>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.</li> <li>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.</li> <li>All measurements shall be made with the monitoring tube located not more than 10mm from the surface.</li> </ul> </li> <li>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.</li> </ul>	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)
<u></u>	the level specified in the Emergency Management in the following section, then evacuation shall be initiated.			2		
S14.7.8-9	<b>Emergency management</b> In the event of the trigger levels specified in Table 14.6 of the EIA report being exceeded, a person, such as the Safety	Health and safety of the workers	Confined space of construction sites within 250m Consultation Zone	Contractor	Construction stage	• Landfill Gas Hazard Assessment

		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
	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	<ul> <li>Protection measures - Operational phase</li> <li>An assumed presence of landfill gas shall be adopted at all times by maintenance workers;</li> <li>all maintenance workers inspecting any manhole shall be fully trained in the issue of LFG hazard;</li> <li>any manhole which is large enough to permit to access to personnel shall be subject to entry safety procedure;</li> <li>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;</li> <li>a strictly regulated "work permit procedure" shall be implemented and the relevant safety procedures must be rigidly followed; and</li> <li>Adequate communication with maintenance staff shall be maintained with respect to LFG.</li> </ul>	Health and safety of the workers	Utility maintenance areas within 250m Consultation Zone/during operational period	Utility companies	Operational stage	<ul> <li>Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97); and</li> <li>Code of Practice on Safety and Health at Work in Confined Space</li> </ul>
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	<ul> <li>Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97); and</li> <li>Code of Practice on Safety and Health at Work in Confined Space</li> </ul>