CONTRACT NO: HK/2015/01

WANCHAI DEVELOPMENT PHASE II AND CENTRAL WANCHAI BYPASS SAMPLING, FIELD MEASUREMENT AND TESTING WORKS (STAGE 3)

ENVIRONMENTAL PERMIT NO. EP-356/2009, FURTHER EVIRONMENTAL PERMIT NOS. FEP-03/356/2009, FEP-04/356/2009 , FEP-06/356/2009, FEP-07/356/2009 AND FEP-08/356/2009

MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT

- APRIL 2019 -

CLIENTS:

Civil Engineering and Development Department

and

Highways Department

PREPARED BY:

Lam Geotechnics Limited

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CERTIFIED BY:

Raymond Dai
Environmental Team Leader

DATE:

9 May 2019

RAMBOLL

Ref.: AACWBIECEM00_0_11267L.19

9 May 2019

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

By Post and Fax (2691 2649)

Attention: Mr. Conrad Ng

Dear Mr. Ng,

Re: Contract No. HK/2015/01
Wan Chai Development Phase II - Central-Wan Chai Bypass
Sampling, Field Measurement and Testing Works (Stage 3)

Monthly Environmental Monitoring and Audit Report (April 2019) for EP-356/2009, FEP-02/356/2009, FEP-03/356/2009, FEP-04/356/2009, FEP-06/356/2009, FEP-07/356/2009 and FEP-08/356/2009

Reference is made to the Environmental Team's submission of the captioned Monthly Environmental Monitoring and Audit (EM&A) Report for April 2019 received by e-mail on 9 May 2019 for our review and comment.

Please be informed that we have no adverse comment on the captioned submission. We write to verify the captioned submission in accordance with Condition 3.4 in the captioned Environmental Permits.

Thank you very much for your kind attention and please do not hesitate to contact the undersigned should you have any queries.

Yours sincerely,

David Yeung
Independent Environmental Checker

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Ramboll Hong Kong Limited 英環香港有限公司
21/F, BEA Harbour View Centre, 56 Gloucester Road, Wan Chai, Hong Kong Tel: 852.3465 2888 Fax: 852.3465 2899
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Encl.

c.c.

HyD	Attn: Mr. Tony Cheung	by fax: 2714 5289
CEDD	Attn: Mr. Lee Hon	by fax: 2301 1277
AECOM	Attn: Ms. Gloria Tang	by fax: 2587 1877
AECOM	Attn: Mr. Eric Wong	by fax: 3912 3010
Lam	Attn: Mr. Raymond Dai	by fax: 2882 3331

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i. This is the Environmental Monitoring and Audit (EM&A) Monthly Report – April 2019 for the Project of Wan Chai Development Phase II and Central-Wanchai Bypass under Environmental Permit no. EP-356/2009 and Further Environmental permit nos. FEP-02/356/2009, FEP-03/356/2009, FEP-04/356/2009, FEP-06/356/2009, FEP-07/356/2009 and FEP-08/356/2009. This report presents the environmental monitoring findings and information recorded during the period of 27 March 2019 to 26 April 2019. The cut-off date of reporting is at 26th of each reporting month.

ii. In the reporting month, the principal work activities of individual contracts conducted are as follow:

Contract no. HK/2009/02 – Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai East

- Trimming work at TWCR4
- Excavation and placing concrete block for Landing Steps

Contract no. HY/2009/19- Wan Chai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link

- Seawall block reinstatement near box culvert T1

Noise Monitoring

iii. No action or limit level exceedance was recorded in the reporting period.

iv. With respect to the shift in major construction site portions at Wan Chai North, the noise monitoring station M1a – Harbour Sports Centre was finely adjusted from East of Harbour Road Sports Centre to West of Harbour Road Sports Centre on 21 June 2016.

v. With respect to the demolition of Ex-Harbour Road Sports Centre, the respective noise monitoring station M1a – Harbour Road Sports Centre were finely adjusted on 16 and 25 May 2017 and thereafter to the Footbridge for Harbour Road Sports for noise monitoring.

vi. As confirmed by CWB RSS, the marine construction works under Contract HY/2010/08 and relevant reporting have been completed by 21 September 2018, the noise monitoring station namely M2b – Noon day gun area and M3a - Tung Lo Wan Fire Station association with Contract HY/2010/08 and relevant reporting has been ceased in the reporting month.

vii. As confirmed by WDII RSS, the marine construction works under HK/2012/08 and relevant reporting have been completed by 2 January 2019, the noise monitoring station namely M1a - Footbridge for Ex-Harbour Road Sports Centre association with Contract HK/2012/08 and relevant reporting has been ceased in the reporting month

viii. Noise monitoring during daytime and restricted hour were conducted at the stations M1a, M4b, M5b and M6 on a weekly basis in the reporting month.

Air Quality Monitoring

ix. No action or limit level exceedance was recorded in the reporting period.

x. With respect to the proposed demolition of the Oil Street Site Office, the respective air quality monitoring station CMA1b – Oil Street Site Office was finely adjusted from the Oil Street Site Office to Harbour Grand Hotel Boundary Wall from 05 June 2017 onwards.

xi. With respect to the proposed demolition of eastern podium of Oil Street Site Office, the respective air quality monitoring station CMA1b – Oil Street Site Office was finely adjusted from East podium of the Oil Street Site Office to the West podium of the Oil Street Site Office on 21 December 2016.

xii. As confirmed by CWB RSS, the marine construction works under Contract HY/2010/08 and relevant reporting have been completed by 21 September 2018, the air monitoring stations namely CMA3a - CWB PRE Site Office association with Contract HY/2010/08 and relevant reporting has been ceased in the reporting month.

xiii. As confirmed by WDII RSS, the marine construction works under HK/2012/08 and relevant reporting have been completed by 2 January 2019, the air monitoring stations namely CMA5b - Pedestrian Plaza, CMA6a – WDII PRE Office association with Contract HK/2012/08 and relevant reporting has been ceased in the reporting month

xiv. 1-hour and 24-hour Total Suspended Particulates (TSP) monitoring were conducted at CMA1b – Oil Street Site Office; CMA2a – Causeway Bay Community Center; CMA3a – CWB PRE Site Office Area; CMA4a – Society for the Prevention of Cruelty to Animals in the reporting month.

Water Quality Monitoring

xv. Action and Limit level of water quality monitoring was transited from dry season to wet season from 01 April 2019.

xvi. With respect to the reinstatement of the silt screen system for Cooling Water Intakes P7, P8, P9 and WSD Water Intake RW21, the respective water quality monitoring was reverted to the previous monitoring location for Water Quality Monitoring Station RW21-P789 from water quality stations RW21-P789 East (RW21-P789E) and RW21-P789 West (RW21-P789W) from 25 January 2017 onwards.

xvii. With respect to the removal of silt screen at WQM station RW21-P789 on 26 November 2016, the respective water quality monitoring at RW21-P789 was adjusted to RW21-P789E and RW21-P789W since 28 November 2016 ebb-tide.

xviii. With respect to the temporarily suspension of marine construction works at WCR3 Area by Contract HK/2009/02, the installed silt screen for intake group (P7, P8, P9 and WSD21) was removed on 26 November 2016.

xix. As advised by the Contractor of HK/2009/01, all silt screen remains removal works at P1, P3, P4, P5 and C1 water quality monitoring stations were completed on 8 May 2016.

xx. With respect to the marine works undertaken at WCR3 by Contract HK/2009/02, the respective water quality monitoring station C1 associated with Contract HK/2009/01 was updated as in association with Contract HK/2009/01 and Contract HK/2009/02.

xxi. With respect to the marine works undertaken at CBTS by Contract HY/2010/08, the respective water quality monitoring station C7 associated with Contract HY/2009/15 was updated as in association with Contract HY/2009/15 and Contract HY/2010/08.

xxii. With respect to the marine works undertaken at HKCEC2 by Contract HK/2012/08, the respective water quality monitoring station WSD19, P1, P3, P4, and P5 were associated with Contract HK/2012/08.

xxiii. As confirmed by WDII RSS, the marine construction works under Contract HK/2009/01 have been completed since 24 July 2017, the monitoring association with Contract HK/2009/01 and relevant reporting has been ceased in the reporting month.

xxiv. Enhanced DO monitoring at Windsor House Cooling (Station Ref: C7) was temporarily suspended since 22 October 2014 with respect to the formation of temporary reclamation zone TS3

xxv. Referring to CWB RSS confirmation on the completion of marine construction activities within the Ex-PCWA area and the completion of the post construction water quality monitoring, the respective Enhance DO Monitoring within Ex-PCWA for monitoring station Ex-PCWA SE and Ex-PCWA SW was temporarily suspended since 07 March 2017 ebb tide onwards.

xxvi. Water quality monitoring station C7 and Enhance DO monitoring station C6 shall be associated with Contract HY/2010/08, upon confirmation of marine construction works completion under Contract HY/2009/15 at CBTS area and Ex-PCWA area since 19 June 2017.

xxvii. Enhanced DO monitoring at Windsor House Cooling (Station Ref: C7) was resumed from 1 February 2018 onwards with respect to the completion of removal of temporary reclamation zone.

xxviii. Referring to CWB RSS confirmation on the completion of removal of temporary reclamation within the TS3 area and the completion of the post construction water quality monitoring, the respective Enhance DO Monitoring within TS3 for monitoring station C6 and C7 was temporarily suspended since 05 March 2018 onwards.

xxix. Referring to CWB RSS confirmation on the completion of marine works within the TS3 area and the completion of the post construction water quality monitoring, the respective water quality monitoring within TS3 for monitoring station C7 was temporarily suspended since 29 October 2018 onwards.

xxx. Referring to WDII RSS confirmation on the completion of marine works under HK/2012/08 within the EP-356 area on 2 January 2019 and the completion of the post construction water quality monitoring (From 2 January 2019 to 30 January 2019), the respective water quality monitoring stations P1, P3, P4, P5 and WSD19 within EP-356 area was temporarily suspended since 15 February 2019 onwards.

Table I Summary of Water Quality Monitoring Exceedances in Reporting Month

Contract no.	Water quality monitoring Station	Mid-flood						Mid-ebb					
		DO		Turbidity		SS		DO		Turbidity		SS	
		AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL
HK/2009/02	C1	0	0	0	0	0	0	0	0	0	0	0	0
HK/2009/02	RW21-P789	0	0	0	0	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Remarks:

1. The cessation of seawater intake operation for C6 was confirmed on 17 May 2011 and the water quality monitoring at C6 was then terminated since 17 May 2011.
2. 4-week post construction water quality monitoring at WSD9, WSD10, WSD15 and WSD17 were completed on 6 Feb 2012 and the water quality monitoring at WSD 10 and WSD15 were temporary suspended since 8 Feb 2012, and WSD9 and WSD17 was implemented with respect to HK/2009/02 from 8 Feb 2012 onwards.
3. C8 and C9 were implemented with respect to HY/2009/19 from 28 Jan 2012.
4. C8 & C9 were temporary suspended since 4 March 2013.
5. WSD7 and WSD20 water quality monitoring were temporarily suspended from 27 Apr 2012.
6. C2, C3 C4e and C4w water quality monitoring station was temporarily suspended since 22 Apr 2013
7. P1, P3, P4 and P5 were commenced since 24 Apr 2013
8. C5e and C5w water quality monitoring station was temporarily suspended since 29 Jul 2013.
9. WSD21 water quality monitoring station was temporarily suspended since 12 Mar 2014
10. WSD9 and WSD17 water quality monitoring station was temporarily suspended since 8 Sep 2014 flood tide.
11. The water quality monitoring station C1 shall be associated with Contract No. HK/2009/02 upon commencement of marine works under DP3 at WCR3 area.
12. The water quality monitoring station RW21-P789 was adjusted to RW21-P789E and RW21-P789W since 28 November 2016 ebb-tide.
13. The water quality monitoring was reverted to previous monitoring station RW21-P789 from PW21-P789E and RW21-P789W from 25 January 2017 onwards.

xxxi. Due to the hoisting of Amber Rainstorm Warning Signal, the water quality monitoring event scheduled on 19 April 2019 during flood tide was cancelled.

xxxii. No action or limit level exceedance was recorded in the reporting period.

Complaints, Notifications of Summons and Successful Prosecutions

xxxiii. No environmental complaint was received in the reporting period.

Site Inspections and Audit

xxxiv. The Environmental Team (ET) conducted weekly site inspections for Contract nos. HK/2009/02, HY/2009/19, HK/2012/08 and HY/2010/08 under EP no. EP-356/2009 in the reporting month. Major observations and recommendations made during the audit sessions were rectified by the Contractors. No non-conformance was identified during the site inspections.

Future Key Issues

xxxv. In coming reporting month, the principal work activities of individual contracts are anticipated as follows:

Contract no. HK/2009/02 – Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai East

- Excavation and placing concrete block for Landing Steps

Contract no. HY/2009/19- Wan Chai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link

- Seawall block reinstatement near box culvert T1

1 Introduction

1.1 Scope of the Report

1.1.1. Lam Geotechnics Limited (LGL) has been appointed to work as the Environmental Team (ET) under Environmental Permit no. EP-356/2009 and Further Environmental permit nos. FEP-02/356/2009, FEP-03/356/2009, FEP-04/356/2009, FEP-06/356/2009, FEP-07/356/2009 and FEP-08/356/2009 to implement the Environmental Monitoring and Audit (EM&A) programme as stipulated in the EM&A Manual of the approved Environmental Impact Assessment (EIA) Report for Wan Chai Development phase II and Central-Wan Chai Bypass (Register No.: AEIAR-125/2008) and in the EM&A Manual of the approved EIA Report for Central-Wan Chai Bypass and Island Eastern Corridor Link (Register No. AEIAR-041/2001).

1.1.2. This report presents the environmental monitoring and auditing work carried out in accordance to the Section 10.3 of EM&A Manual and "*Environmental Monitoring and Audit Requirements"* under Particular Specification Section 27.

1.1.3. This report documents the finding of EM&A works for Environmental Permit no. EP-356/2009, Further Environmental Permit no. FEP-02/356/2009, FEP-03/356/2009, FEP-04/356/2009, FEP-06/356/2009, FEP-07/356/2009 and FEP-08/356/2009 during the period of 27 March 2019 to 26 April 2019. The cut-off date of reporting is at 26th of each reporting month.

1.2 Structure of the Report

Section 1 ***Introduction*** – details the scope and structure of the report.

Section 2 ***Project Background*** – summarizes background and scope of the project, site description, project organization and contact details of key personnel during the reporting period.

Section 3 ***Status of Regulatory Compliance*** – summarizes the status of valid Environmental Permits / Licenses during the reporting period.

Section 4 ***Monitoring Requirements*** – summarizes all monitoring parameters, monitoring methodology and equipment, monitoring locations, monitoring frequency, criteria and respective event and action plan and monitoring programmes.

Section 5 ***Monitoring Results*** – summarizes the monitoring results obtained in the reporting period.

Section 6 ***Compliance Audit*** – summarizes the auditing of monitoring results, all exceedances environmental parameters.

Section 7 ***Cumulative Construction Impact due to the Concurrent Projects*** – summarizes the relevant cumulative construction impact due to the concurrent activities of the concurrent Projects.

Section 8 **Environmental Site Audit** – summarizes the findings of weekly site inspections undertaken within the reporting period, with a review of any relevant follow-up actions within the reporting period.

Section 9 ***Complaints, Notification of summons and Prosecution*** – summarizes the cumulative statistics on complaints, notification of summons and prosecution

Section 10 ***Conclusion***

2 Project Background

2.1 Background

2.1.1. "Wan Chai Development phase II and Central-Wan Chai Bypass" and "Central-Wan Chai Bypass and Island Eastern Corridor Link" (hereafter called "the Project") are Designed Project (DP) under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO). The Environmental Impact Assessment (EIA) Reports for Central-Wan Chai Bypass and Island Eastern Corridor Link (Register No. AEIAR-041/2001) and Wan Chai Development phase II and Central-Wan Chai Bypass (Register No.: AEIAR-125/2008) have been approved on 31 August 2001 and 11 December 2008 respectively.

2.1.2. The key purpose of Wan Chai Development Phase II (WDII) is to provide land at Wan Chai North and North Point for construction of the Central-Wan Chai Bypass and Island Eastern Corridor Link (CWB). Land formed under the project will be developed as a world-class waterfront promenade joining that at the new Central waterfront for public enjoyment.

2.1.3. There is a compelling and present need for the CWB to provide relief to the very congested east-west Connaught Road Central/Harcourt Road / Gloucester Road Corridor (the Corridor) which is currently operating beyond its capacity. The CWB will provide relief to the existing congestion along the Corridor and cater for the anticipated growth of traffic on Hong Kong Island. Without the CWB and its access roads, there will not be sufficient capacity to serve the heavy traffic demands at both strategic and local levels.

2.2 Scope of the Project and Site Description

2.2.1. The Project is located mainly in Wan Chai North, Causeway Bay and North Point, and is demarcated by Gloucester Road and Victoria Park Road to the south, Fenwick Pier Street to the west and Tong Shui Road Interchange to the east, as shown in ***Figure 2.1***.

2.2.2. The study area encompasses existing developments along the Wan Chai, Causeway Bay and North Point shorelines. Major land uses include the Hong Kong Convention & Exhibition Centre (HKCEC) Extension, the Wan Chai Ferry Pier, the ex-Wan Chai Public Cargo Working Area (ex-PCWA), the Royal Hong Kong Yacht Club (RHKYC), the Police Officers' Club, the Causeway Bay Typhoon Shelter (CBTS) and commercial and residential developments.

2.2.3. The scope of the Project comprises:

- Land formation for key transport infrastructure and facilities, including the Trunk Road (i.e. CWB) and the associated slip roads for connection to the Trunk Road and for through traffic from Central to Wan Chai and Causeway Bay. The land formed for the above transport infrastructure will provide opportunities for the development of an attractive waterfront promenade for the enjoyment of the public

- Reprovisioning / protection of the existing facilities and structures affected by the land formation works mentioned above
- Extension, modification, reprovisioning or protection of existing storm water drainage outfalls, sewerage outfalls and watermains affected by the revised land use and land formation works mentioned above
- Upgrading of hinterland storm water drainage system and sewerage system, which would be rendered insufficient by the land formation works mentioned above
- Provision of the ground level roads, flyovers, footbridges, necessary transport facilities and the associated utility services
- Construction of the new waterfront promenade, landscape works and the associated utility services
- The Trunk Road (i.e. CWB) within the study area and the associated slip roads for connection to the Trunk Road.

2.2.4. The project also contains various Schedule 2 DPs that, under the EIAO, require Environmental Permits (Eps) to be granted by the DEP before they may be either constructed or operated. ***Table 2.1*** summarises the five individual DPs under this Project. ***Figure 2.1*** shows the locations of these Schedule 2 DPs.

Table 2.1 Schedule 2 Designated Projects under this Project

Item	Designated Project	EIAO Reference	Reason for inclusion
DP1	Central-Wanchai Bypass (CWB) including its road tunnel and slip roads	Schedule 2, Part I, A.1 and A.7	Trunk road and road tunnel more than 800 m in length
DP2	Road P2 and other roads which are classified as primary/district distributor roads	Schedule 2, Part I, A.1	Primary / district distributor roads
DP3	Reclamation works including associated dredging works	Schedule 2, Part I, C.1 and C.12	Reclamation more than 5 ha in size and a dredging operation less than 100 m from a seawater intake point
DP5	Wan Chai East Sewage Outfall	Schedule 2, Part I, F.5 and F.6	Submarine sewage pipelines with a total diameter more than 1,200 mm and include a submarine sewage outfall
DP6	Dredging for the Cross-harbour Water Mains from Wan Chai to Tsim Sha Tsui	Schedule 2, Part I, C.12	A dredging operation less than 100 m from a seawater intake point

2.3 Division of the Project Responsibility

2.3.1. Due to the multi-contract nature of the Project, there are a number of contracts sub-dividing the whole works area into different work areas to be commenced. Contractors of individual contracts will be required by the EP holder to apply Further Environmental Permits (FEP) such that the impact monitoring stations are sub-divided accordingly to facilitate the implementation of EM&A programme and to streamline the EM&A reporting for individual FEP holders correspondingly.

2.3.2. The details of individual contracts are summarized in ***Table 2.2***.

Table 2.2 Details of Individual Contracts under the Project

Contract No.	Contract Title	Associated DP(s)	Construction Commencement Date
HK/2009/01	Wan Chai Development Phase II – Central –Wanchai Bypass at Hong Kong Convention and Exhibition Centre	DP3, DP6	23 July 2010 (Completed)
		DP1, DP2	25 August 2011 (Completed)
HK/2009/02	Wan Chai Development Phase II – Central – Wan Chai Bypass at WanChai East	DP3, DP5	5 July 2010
		DP1	26 April 2011
HY/2009/11	Wan Chai Development Phase II and Central – Wan Chai Bypass – North Point Reclamation	DP3	17 March 2010 (Completed)
HY/2009/15	Central-Wanchai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section)	DP3	10 November 2010 (Completed)
		DP1	13 July 2011 (Completed)
HK/2010/06	Wan Chai Development Phase II-Central-Wan Chai Bypass over MTR Tsuen Wan Line	DP3	22 March 2011 (Completed)
04/HY/2006	Reconstruction of Bus Terminus near Man Yiu Street and Man Kwong Street	DP1	September 2010 (Completed)
HY/2009/17	Central – Wan Chai Bypass (CWB) at FEHD Whitfield Depot – Advanced piling works.	DP1	5 October 2010 (Completed)
HY/2009/18	Central – Wan Chai Bypass (CWB) – Central Interchange	DP1	21 April 2011 (Completed)
HY/2009/19	Central – Wanchai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link	DP1	24 March 2011

Contract No.	Contract Title	Associated DP(s)	Construction Commencement Date
HK/2012/08	Wan Chai Development Phase II Central-Wan Chai Bypass at Wan Chai West	DP1,DP2, DP3	10 March 2014
HY/2010/08	Central- Wanchai Bypass Tunnel – Tunnel (Slip Road 8)	DP1, DP2, DP3	21 March 2013
HY/2011/08	Central-Wan Chai Bypass (CWB) – Tunnel Buildings, Systems and Fittings, and Works Associated with Tunnel Commissioning	DP1	8 October 2014

2.4 Project Organization and Contact Personnel

2.4.1. Civil Engineering and Development Department and Highways Department are the overall project controllers for the Wan Chai Development Phase II and Central-Wan Chai Bypass respectively. For the construction phase of the Project, Project Engineer, Contractor(s), Environmental Team and Independent Environmental Checker are appointed to manage and control environmental issues.

2.4.2. The proposed project organization and lines of communication with respect to environmental protection works are shown in ***Figure 2.2***. Key personnel and contact particulars are summarized in ***Table 2.3***:

Table 2.3 Contact Details of Key Personnel

Party	Role	Post	Name	Contact No.	Contact Fax
AECOM	Engineer's Representative for WDII	Chief Resident Engineer	Ms. Gloria Tang	2587 1778	2587 1877
	Engineer's Representative for CWB	Chief Resident Engineer	Mr. Dennis Norton	3912 3188	3912 3010
		Chief Resident Engineer	Mr. S. K. Lo	3912 3288	3912 3010
Chun Wo – CRGL Joint Venture	Contractor under Contract no. HK/2009/02	Project Manager	Mr. Paul Yu	3658 3085	2827 9996
		Quality & Environmental Manager	Mr. C.P. Ho	9191 8856	
China State Construction Engineering (HK) Ltd.	Contractor under Contract no. HY/2009/15	Project Director	Mr. Chris Leung	3557 6393	2566 2192
		Site Agent	Mr. Patrick Ho	3557 6405	
		Construction Manager	Mr. Tom Tong	3557 6415	
		Environmental Officer	Mr. Gabriel Wong	6114 9590	
		Environmental Supervisor	Mr. Gordon Lai	6145 6365	
Chun Wo – CRGL – MBEC_Joint Venture	Contractor under Contract no. HY/2009/19	Project Manager	Mr. David Lau	3758 8879	3757 8901
		Site Agent	Mr. William Luk	3758 6868	
		Deputy Site Agent	Mr. Andy Chan	9879 4325	

Party	Role	Post	Name	Contact No.	Contact Fax
		Environmental Manager / Environmental Officer	Mr. M.H. Isa	9884 0810	
		Assist Environmental Officer	Mr. James Chan	9602 2911	
		Construction Manager (Marine)	Mr. Wingo Wong	9300 2625	
		Construction Manager (Noise Barrier)	Mr. Jerry Siu	9493 3664	
		Construction Manager (Land)	Mr. Yung Kwok Wah	9834 1010	
China State-Build King Joint Venture	Contractor under Contract no. HK/2012/08	Project Director	Mr. C. N. Lai	9106 5806	2877 1522
		Site Agent	Mr. George Cheung	9268 1918	
		Environmental Officer	Mr. James Ma	9130 9549	
		Environmental Supervisor	Mr. Y. L. Ho	9856 5669	
China State	Contractor under Contract no. HY/2010/08	Project Director	Mr. Chris Leung	3467 4299	2566 8061
		Project Manager	Mr. Chan Ying Lun	3418 3001	
		Site Agent	Mr. Thomas Lui	3557 6452	
		Marine Manager	Mr. Nickael Chan	3557 6333	
		Construction Manager	Mr. Tom Tong	3557 6367	
		Environmental Officer	Mr. Gabriel Wong	3557 6466	
Ramboll Hong Kong Limited	Independent Environmental Checker (IEC)	Independent Environmental Checker (IEC)	Mr. David Yeung	3465 2888	3465 2899

Party	Role	Post	Name	Contact No.	Contact Fax
Lam Geotechnics Limited	Environmental Team (ET)	Environmental Team Leader (ETL)	Mr. Raymond Dai	2882 3939	2882 3331

2.4.3. In the reporting month, the principal work activities of individual contracts conducted are as follow:

Contract no. HK/2009/02 – Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai East

- Trimming work at TWCR4
- Excavation and placing concrete block for Landing Steps

Contract no. HY/2009/19- Wan Chai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link

- Seawall block reinstatement near box culvert T1

2.4.4. In coming reporting month, the principal work activities of individual contracts are anticipated as follows:

Contract no. HK/2009/02 – Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai East

- Excavation and placing concrete block for Landing Steps

Contract no. HY/2009/19- Wan Chai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link

- Seawall block reinstatement near box culvert T1

3 Status of Regulatory Compliance

3.1 Status of Environmental Licensing and Permitting under the Project

3.1.1. A summary of the current status on licences and/or permits on environmental protection pertinent to the Project is shown in ***Table 3.1***.

Table 3.1 Summary of the current status on licences and/or permits on environmental protection pertinent to the Project

Permits and/or Licences	Reference No.	Issued Date	Status
Environmental Permit	EP-356/2009	30 Jul 2009	Valid
Environmental Permit	EP-364/2009/E	22 Dec 2016	Valid
Environmental Permit	EP-376/2009	13 Nov 2010	Valid
Further Environmental Permit	FEP-01/356/2009	18 Feb 2010	Surrendered
Further Environmental Permit	FEP-02/356/2009	24 Mar 2010	Surrendered
Further Environmental Permit	FEP-03/356/2009	24 Mar 2010	Valid
Further Environmental Permit	FEP-04/356/2009	22 Nov 2010	Valid
Further Environmental Permit	FEP-05/356/2009	24 Mar 2011	Surrendered
Further Environmental Permit	FEP-01/364/2009	24 Mar 2010	Valid
Further Environmental Permit	FEP-02/364/2009	21 Apr 2010	Valid
Further Environmental Permit	FEP-03/364/2009	12 Jul 2010	Surrendered
Further Environmental Permit	FEP-04/364/2009/A	14 Oct 2010	Surrendered
Further Environmental Permit	FEP-05/364/2009/A	15 Nov 2010	Valid
Further Environmental Permit	FEP-06/364/2009/A	22 Nov 2010	Valid
Further Environmental Permit	FEP-07/364/2009/B	20 Sep 2012	Surrendered
Further Environmental Permit	FEP-07/364/2009/D	24 Nov 2015	Valid
Further Environmental Permit	FEP-08/364/2009/A	15 Jun 2012	Surrendered
Further Environmental Permit	FEP-06/356/2009	5 Mar 2013	Valid

Permits and/or Licences	Reference No.	Issued Date	Status
Further Environmental Permit	FEP-07/356/2009	26 July 2013	Valid
Further Environmental Permit	FEP-09/364/2009/B	5 March 2013	Valid
Further Environmental Permit	FEP-10/364/2009/B	26 July 2013	Valid
Further Environmental Permit	FEP-08/356/2009	1 Aug 2016	Valid
Further Environmental Permit	FEP-11/364/2009/E	22 Dec 2016	Valid

3.1.2. Due to the multi-contract nature of the Project, the status of permits and/or licences under the individual contract(s) are presented as below:

Contract no. HK/2009/02 – Wan Chai Development Phase II – Central – Wan Chai Bypass at WanChai East

3.1.3. Summary of the current status on licences and/or permits on environmental protection pertinent and submission for contract no. HK/2009/02 under FEP-03/356/2009 are shown in ***Table 3.4*** and ***Table 3.5***.

Table 3.4 Cumulative Summary of Valid Licences and Permits under Contract no. HK/2009/02

Permits and/or Licences	Reference No.	Issued Date	Valid Period/ Expiry Date	Status
Further Environmental Permit	FEP-03/356/2009	24 Mar 2010	N/A	Valid
	FEP-01/364/2009	24 Mar 2010	N/A	Valid
Notification of Works Under APCO	313962	2 Feb 2010	N/A	Valid
Construction Noise Permit (CNP) for non-piling equipment	GW-RS1281-18	8 Jan 2019	10 Jan 2019 to 8 Jul 2019	Valid
	GW-RS1253-18	8 Jan 2019	12 Jan 2019 to 31 Mar 2019	Valid
	GW-RS0133-19	13 Feb 2019	14 Feb 2019 to 13 Aug 2019	Valid
	GW-RS0333-19	12 Apr 2019	23 Apr 2019 to 22 Oct 2019	Valid
Discharge Licence	WT00022295-2015	12 Aug 2015	31 July 2020	Valid
	WT00025276-2016	19 Sep 2016	31 July 2021	Valid
Billing Account under Waste Disposal Ordinance (Land)	7010255	10 Feb 2010	N/A	Valid
Billing Account under Waste Disposal Ordinance (Marine)	7011496	6 Oct 2010	N/A	Valid
Registration as Chemical Waste Producer (Wan Chai)	WPN5213-135-C3593-01	10 Mar 2010	N/A	Valid
Registration as Chemical Waste Producer (TKO 137)	WPN5213-839-C3593-02	22 Sep 2010	N/A	Valid

Table 3.5 Summary of submission status under FEP-03/356/2009 Condition

EP Condition	**Submission**	**Date of Submission**
Condition 1.12	Commencement Date of Construction of Marine Works	8 April 2010
Condition 2.6	Management Organization of Main Construction Companies	10 April 2010
Condition 2.7	Works Schedule and Location Plans	8 April 2010
Condition 2.8	Silt Curtain Deployment Plan (Revision O)	24 May 2018
Condition 2.9	Silt Screen Deployment Plan	21 April 2010
	Supplementary Information for Existing WSD Salt Water Intakes at Quarry Bay and Sai Wan Ho	5 Oct 2010
	Silt Screen Deployment Plan (Revision F)	23 Nov 2016
Condition 2.17	Noise Management Plan	6 May 2010
Condition 2.18	Landscape Plan (Decorative Screen Hoarding)	11 May 2010
	Landscape Plan (Control of Night Time Lighting)	2 June 2010
	Landscape Plan (Combined Version)	20 July 2011
	Landscape Plan (Combined Version)	5 Aug 2011
-----	Acknowledge of Submission	22 Aug 2011

Contract no. HY/2009/15 – Central-Wanchai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section)

3.1.4. Summary of the current status on licences and/or permits on environmental protection pertinent and submission for contract no. HY/2009/15 under FEP-04/356/2009 are shown in ***Table 3.6*** and ***Table 3.7***.

Table 3.6 Cumulative Summary of Valid Licences and Permits under Contract no. HY/2009/15

Permits and/or Licences	**Reference No.**	**Issued Date**	**Valid Period/ Expiry Date**	**Status**
Further Environmental Permit	FEP-04/356/2009	22 Nov 2010	N/A	Valid
Notification of Works Under APCO	321822	24 Sep 2010	N/A	Valid
Registration as a Chemical Waste Producer	WPN5213-147-C1169-35	15 Nov 2010	N/A	Valid
Billing Account under Waste Disposal Ordinance	7011553	30 Sep 2010	N/A	Valid

Table 3.7 Summary of submission status under FEP-04/356/2009 Condition

FEP Condition	Submission	Date of Submission
Condition 2.6	Management Organization of Main Construction Companies	30 Sep 2010
	Amendment for Management Organization of Main Construction Companies	16 May 2011
Condition 2.7	Works Schedule and Location Plans	27 Oct 2010
	Amendment for Works Schedule and Location Plans	12 Nov 2010
Condition 2.8	Silt Curtain Deployment Plan	30 Nov 2010
	Amendment for Silt Curtain Deployment Plan	24 Feb 2011
	Amendment for Silt Curtain Deployment Plan	11 May 2011
	Amendment for Silt Curtain Deployment Plan	11 Sep 2012
	Amendment for Silt Curtain Deployment Plan	30 Oct 2012
Condition 2.9	Silt Screen Deployment Plan	19 Oct 2010
	Amendment for Silt Screen Deployment Plan	18 Feb 2011
	Amendment for Silt Screen Deployment Plan	15 Jun 2011
Condition 2.18	Proposal for the Removal of Odorous Sediment and Slime	13 Jan 2011
	Amendment for Proposal for the Removal of Odorous Sediment and Slime	8 Mar 2011
	Amendment for Proposal for the Removal of Odorous Sediment and Slime	2 Aug 2011
Condition 2.21	Landscape Plan	18 Feb 2011
Condition 2.23	Noise Management Plan	20 Oct 2010
	Amendment for Noise Management Plan	27 Jan 2011

Contract no. HY/2009/19 – Central- Wan Chai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link

3.1.5. Summary of the current status on licences and/or permits on environmental protection pertinent for contract no. HY/2009/19 is shown in ***Table 3.8***

Table 3.8 Cumulative Summary of Valid Licences and Permits under Contract no. HY/2009/19

Permit / Licence / Notification / Approval	Reference No.	Issued Date	Valid Period / Expiry date	Status
Further Environmental Permit	FEP-07/364/2009/D	24 Nov 2015	N/A	Valid
Notification of Works Under APCO	326160	24 Jan 2011	N/A	Valid
Notification of Works (further proposed change to the particulars) Under APCO	415587	11 Apr 2017	N/A	Valid
Construction Noise Permit (CNP) for piling equipment	-	-	-	-
Construction Noise Permit (CNP)	GW-RS0158-19	27 Feb 2019	1 Mar 2019 to 30 Apr 2019	Valid
	GW-RS0159-19	27 Feb 2019	1 Mar 2019 to 30 Apr 2019	Valid
	GW-RS0342-19	18 Apr 2019	20 Apr 2019 to 17 Oct 2019	Valid
	GW-RS0343-19	18 Apr 2019	20 Apr 2019 to 17 Oct 2019	Valid
C&D Waste Disposal	7012306	10 Feb 2011	N/A	-
Vessel Disposal	7013285	21 July 2011	N/A	-
Registration as Chemical Waste Producer	5213-151-C3654-01	24 Mar 2011	N/A	-

Contract no. HK/2012/08 – Wan Chai Development Phase II – Central- Wan Chai Bypass at Wan Chai West

3.1.6. Summary of the current status on licences and/or permits on environmental protection pertinent and submission for contract no. HK/2012/08 under FEP-08/356/2009 are shown in ***Table 3.9*** and ***Table 3.10***.

Table 3.9 Cumulative Summary of Valid Licences and Permits under Contract no. HK/2012/08

Permits and/or Licences	Reference No.	Issued Date	Valid Period/ Expiry Date	Status
Further Environmental Permit	FEP-06/356/2009	5 Mar 2013	N/A	Valid
	FEP-08/356/2009	1 Aug 2016	N/A	Valid
Notification of Works Under APCO	355439	4 Feb 2013	N/A	Valid
Registration as a Chemical Waste Producer	5213-134-C3790-01	30 Jun 2016	N/A	Valid
Billing Account under Waste Disposal Ordinance	7016883	18 Feb 2013	N/A	Valid
Construction Noise Permit	GW-RS0154-19	18 Feb 2018	26 Feb 2019 to 25 Aug 2019	Valid
	GW-RS1243-18	31 Dec 2018	13 Jan 2019 to 12 Jul 2019	Valid
	GW-RS0294-19	2 Apr 2019	5 Apr 2019 to 4 Oct 2019	Valid

Table 3.10 Summary of submission status under EP-356/2009 and FEP-06/356/2009 Condition

FEP Condition	Submission	Date of Submission
Condition 2.8	Silt Curtain Deployment Plan (Rev. 3)	Submitted on 25 Nov 2013 was returned to CSLJV by EPD.
Condition 2.9	Silt Screen Deployment Plan (Rev. 3)	Generally in order as commented by EPD on 19 Sep 2013
Condition 2.23	Noise Management Plan (Rev. 2)	Generally in order as commented by EPD on 15 Aug 2013
Condition 2.24	Landscape Plan (Rev. 3)	Generally in order as commented by EPD on 31 Oct 2013

Contract no. HY/2010/08 –Central - Wan Chai Bypass (CWB) –Tunnel (Slip Road 8)

3.1.7. Summary of the current status on licences and/or permits on environmental protection pertinent and submission for contract no. HY/2010/08 under FEP-07/356/2009 are shown in Table ***3.11*** and ***Table 3.12***.

Table 3.11 Cumulative Summary of Valid Licences and Permits under Contract no. HY/2010/08

Permits and/or Licences	Reference No.	Issued Date	Valid Period/ Expiry Date	Status
Further Environmental Permit	FEP-07/356/2009	26 Jul 2013	NA	Valid
	FEP-10/364/2009/B	26 Jul 2013	NA	Valid
Notification of Works Under APCO	357176	2 Apr 2013	N/A	Valid
Registration as a Chemical Waste Producer	WPN5213-147-C1169-44	27 Mar 2013	N/A	Valid
Billing Account under Waste Disposal Ordinance	7017170	27 Mar 2013	N/A	Valid
Billing Account under Waste Disposal Ordinance (Dumping by Vessel)	7020947	22 Dec 2014	N/A	Valid.
Water Discharge Licence	WT00031281-2018	31 Jul 2018	31 Jul 2018 to 31 Jul 2023	Valid
Construction Noise Permit	GW-RS0214-19	11 Mar 2019	13 Mar 2019 to 10 Sep 2019	Valid

Table 3.12 Summary of submission status under EP-356/2009 and FEP-07/356/2009 Condition

FEP Condition	Submission	Date of Submission
Condition 2.8	Silt Curtain Deployment Plan (Rev 3)	24 Dec 2014
Condition 2.9	Silt Screen Deployment Plan (Rev 5)	1 March 2019
Condition 2.23	Noise Management Plan (Rev 2)	25 Mar 2014
Condition 2.24	Landscape Plant (Rev 2)	23 Sep 2014

4 Monitoring Requirements

4.1 Noise Monitoring

NOISE MONITORING STATIONS

4.1.1. The noise monitoring stations for the Project are listed and shown in ***Table 4.1*** and ***Figure 4.1***. ***Appendix 4.1*** shows the established Action/Limit Levels for the monitoring works.

Table 4.1 Noise Monitoring Station

Station	Description
M1a	Footbridge for Ex-Harbour Road Sports Centre*
M2b	Noon Gun Area
M3a	Tung Lo Wan Fire Station
M4b	Victoria Centre
M5b	City Garden
M6	HK Baptist Church Henrietta Secondary School

Remarks*: With respect to the demolition of Ex-Harbour Road Sports Centre, the respective noise monitoring station M1a – Harbour Road Sports Centre were finely adjusted on 16 and 25 May 2017 and thereafter to the Footbridge for Harbour Road Sports for noise monitoring

NOISE MONITORING PARAMETERS, FREQUENCY AND DURATION

4.1.2. The construction noise level shall be measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). $L_{eq\ (30\ minutes)}$ shall be used as the monitoring parameter for the time period between 0700 and 1900 hours on normal weekdays. For all other time periods, $L_{eq\ (5\ minutes)}$ shall be employed for comparison with the Noise Control Ordinance (NCO) criteria. Supplementary information for data auditing, statistical results such as L10 and L90 shall also be obtained for reference.

4.1.3. Noise monitoring shall be carried out at all the designated monitoring stations. The monitoring frequency shall depend on the scale of the construction activities. The following is an initial guide on the regular monitoring frequency for each station on a weekly basis when noise generating activities are underway:

- One set of measurements between 0700 and 1900 hours on normal weekdays.

4.1.4. If construction works are extended to include works during the hours of 1900 – 0700 as well as public holidays and Sundays, additional weekly impact monitoring shall be carried out during

respective restricted hours periods. Applicable permits under NCO shall be obtained by the Contractor.

MONITORING EQUIPMENT

4.1.5. As referred to in the Technical Memorandum ™ 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 level from before and after the noise measurement agree to within 1.0 dB.

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

4.2 Air Monitoring

AIR QUALITY MONITORING STATIONS

4.2.1. The air monitoring stations for the Project are listed and shown in ***Table 4.2*** and ***Figure 4.1***. ***Appendix 4.1*** shows the established Action/Limit Levels for the monitoring works.

Table 4.2 Air Monitoring Station

Station ID	Monitoring Location	Description
CMA1b	Harbour Grand Hotel Boundary Wall**	North Point
CMA2a	Causeway Bay Community Centre	Causeway Bay
CMA3a	CWB PRE Site Office *	Causeway Bay
CMA4a	Society for the Prevention of Cruelty to Animals	Wan Chai
CMA5b	Pedestrian Plaza***	Wan Chai
CMA6a	WDII PRE Site Office *	Wan Chai

Remarks*: As per the ENPC meeting in March 2011, the monitoring stations CMA3a – Future CWB site office at Wanchai Waterfront Promenade was renamed as remark.

Remarks**: The location ID of monitoring station CMA1b was updated as “Harbour Grand Hotel Boundary Wall” from 05 June 2017 onwards.

Remarks***: The station ID and monitoring location was updated in December 2014 with respect to monitoring station relocation.

AIR MONITORING PARAMETERS, FREQUENCY AND DURATION

4.2.2. One-hour and 24-hour TSP levels should be measured to indicate the impacts of construction dust on air quality. The 24-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.

4.2.3. All relevant data including temperature, pressure, weather conditions, elapsed-time meter reading for the start and stop of the sampler, identification and weight of the filter paper, and any other local atmospheric factors affecting or affected by site conditions, etc., shall be recorded down in detail.

4.2.4. For regular impact monitoring, the sampling frequency of at least once in every six-days, shall be strictly observed at all the monitoring stations for 24-hour TSP monitoring. For 1-hour TSP monitoring, the sampling frequency of at least three times in every six-days should be undertaken when the highest dust impact occurs.

SAMPLING PROCEDURE AND MONITORING EQUIPMENT

4.2.5. High volume samplers (HVSs) in compliance with the following specifications shall be used for carrying out the 1-hour and 24-hour TSP monitoring:

- 0.6 – 1.7 m3 per minute adjustable flow range;
- equipped with a timing / control device with +/- 5 minutes accuracy for 24 hours operation;
- installed with elapsed-time meter with +/- 2 minutes accuracy for 24 hours operation;
- capable of providing a minimum exposed area of 406 cm2;
- flow control accuracy: +/- 2.5% deviation over 24-hour sampling period;
- equipped with a shelter to protect the filter and sampler;
- incorporated with an electronic mass flow rate controller or other equivalent devices;
- equipped with a flow recorder for continuous monitoring;
- provided with a peaked roof inlet;
- incorporated with a manometer;
- able to hold and seal the filter paper to the sampler housing at horizontal position;
- easily changeable filter; and
- capable of operating continuously for a 24-hour period.

4.2.6. Initial calibration of dust monitoring equipment shall be conducted upon installation and thereafter at bi-monthly intervals. The transfer standard shall be traceable to the internationally recognized primary standard and be calibrated annually. The concern parties such as IEC

shall properly document the calibration data for future reference. All the data should be converted into standard temperature and pressure condition.

LABORATORY MEASUREMENT / ANALYSIS

4.2.7. A clean laboratory with constant temperature and humidity control, and equipped with necessary measuring and conditioning instruments to handle the dust samples collected, shall be available for sample analysis, and equipment calibration and maintenance. The laboratory should be HOKLAS accredited.

4.2.8. An alternative non-HOKLAS accredited laboratory was set-up for carrying out the laboratory analysis, the laboratory equipment was approved by the ER on 8 February 2011 and the measurement procedures were witnessed by the IEC. Any measurement performed by the laboratory was be demonstrated to the satisfaction of the ER and IEC. IEC shall regularly audit to the measurement performed by the laboratory to ensure the accuracy of measurement results.

4.2.9. Filter paper of size 8" x 10" shall be labelled before sampling. It shall be a clean filter paper with no pinholes, and shall be conditioned in a humidity-controlled chamber for over 24-hours and be pre-weighed before use for the sampling.

4.2.10. After sampling, the filter paper loaded with dust shall be kept in a clean and tightly sealed plastic bag. The filter paper shall then be returned to the laboratory for reconditioning in the humidity controlled chamber followed by accurate weighing by an electronic balance with readout down to 0.1 mg. The balance shall be regularly calibrated against a traceable standard.

4.2.11. All the collected samples shall be kept in a good condition for 6 months before disposal.

IMPACT MONITORING FOR ODOUR PATROL

4.2.12. Odour patrols along the shorelines of Causeway Bay Typhoon Shelter and ex-Wan Chai Public Cargo Working Area when there is temporary reclamation in Causeway Bay Typhoon Shelter and/or in the ex-Wan Chai Public Cargo Working Area, or when there is dredging of the odorous sediment and slime at the south-western corner of the Causeway Bay Typhoon Shelter. Odour patrols will be carried out at bi-weekly intervals during July, August and September by a qualified person of the ET who shall:

- be at least 16 years of age;
- be free from any respiratory illnesses; and
- not be allowed to smoke, eat, drink (except water) or use chewing gum or sweets 30 min
- before and during odour patrol

4.2.13. Odour patrol shall be conducted by independent trained personnel / competent persons patrolling and sniffing around the shore as shown in ***Figure 4.1*** to detect any odour at the concerned hours (afternoon is preferred for higher daily temperature).

4.2.14. The qualified person will use the nose (olfactory sensor) to sniff odours at different locations. The main odour emission sources and the areas to be affected by the odour nuisance will be identified.

4.2.15. The perceived odour intensity is to be divided into 5 levels which are ranked in the descending order as follows:

- 0 – Not detected. No odour perceived or an odour so weak that it cannot be easily characterized or described;
- 1 – Slight Identifiable odour, and slight chance to have odour nuisance;
- 2 – Moderate Identifiable odour, and moderate chance to have odour nuisance;
- 3 – Strong Identifiable, likely to have odour nuisance;
- 4 – Extreme Severe odour, and unacceptable odour level.

4.2.16. The findings including odour intensity, odour nature and possible odour sources, and also the local wind speed and direction at each location will be recorded. In addition, some relevant meteorological and tidal data such as daily average temperature, and daily average humidity, on that surveyed day will be obtained from the Hong Kong Observatory Station for reference. The Action and Limit levels for odour patrol are shown in ***Appendix 4.1***.

4.2.17. The qualified odour patrol member has individual n-butanol thresholds complied with the requirement of European Standard Method of Air Quality – Determination of Odour Concentration by Dynamic Olfactometry (EN13725) in the range of 20 to 80 ppb.

4.3 Water Quality Monitoring

4.3.1. The EIA Report has identified that the key water quality impact would be associated with the dredging works during the construction phase. Marine water quality monitoring for dissolved oxygen (DO), suspended solid (SS) and turbidity is therefore recommended to be carried out at selected WSD flushing water intakes. The impact monitoring should be carried out during the proposed dredging works to ensure the compliance with the water quality standards.

4.3.2. The updated EM&A Manual for EP-356/2009 (Version in March 2011) is approval by EPD on 29 April 2011. As such, the Action Level and Limit Level for the wet season (April – September) will be effected and applied to the water quality monitoring data from 30 April 2011.

Water Quality Monitoring Stations

4.3.3. Water quality monitoring was undertaken at 8 monitoring stations for WSD salt water intakes and cooling water intakes along the seafront of the Victoria Harbour in the reporting month.

The proposed water quality monitoring stations of the Project are shown in ***Table 4.3*** and ***Figure 4.1***. ***Appendix 4.1*** shows the established Action/Limit Levels for the monitoring works.

Table 4.3 Marine Water Quality Stations for Water Quality Monitoring

Station Ref.	Location	Easting	Northing
WSD Salt Water Intake			
WSD19	Sheung Wan	833415.0	816771.0
Cooling Water Intake			
C1	HKCEC Extension	835885.6	816223.0
C7	Windsor House	837193.7	816150.0
P1	HKCEC Phase I	835774.7	816179.4
P3	The Academy of performing Arts	835824.6	816212.0
P4	Shui on Centre	835865.6	816220.0
P5	Government Buildings (Wanchai Tower / Revenue Tower / Immigration Tower)	835895.2	816215.2
Cooling Water Intake / WSD Salt Water Intake			
RW21-P789	Great Eagle Centre/ Sun Hung Kai Centre/ WSD Wanchai salt water intake / China Resources Building	836268.0	816020.0

Remarks: - The cessation of seawater intake operation for C6 was confirmed on 17 May 2011 and the water quality monitoring at C6 was then terminated since 17 May 2011.

- 4-week post construction water quality monitoring at WSD9, WSD10, WSD15 and WSD17 were completed on 6 Feb 2012 and the water quality monitoring at WSD 10 and WSD15 were temporary suspended since 8 Feb 2012, and WSD9 and WSD17 was implemented with respect to HK/2009/02 from 8 Feb 2012 onwards.
- C8 and C9 were implemented with respect to HY/2009/19 from 28 Jan 2012.
- C8 & C9 were temporary suspended since 4 March 2013.
- WSD7 and WSD20 water quality monitoring were temporarily suspended from 27 Apr 2012.
- C2, C3 C4e and C4w water quality monitoring station was temporarily suspended since 22 Apr 2013
- P1, P3, P4 and P5 were commenced since 24 Apr 2013
- C5e and C5w water quality monitoring station was temporarily suspended since 29 Jul 2013.
- WSD21 water quality monitoring station was temporarily suspended since 12 Mar 2014
- WSD9 and WSD17 water quality monitoring station was temporarily suspended since 8 Sep 2014 flood tide.

- The water quality monitoring station C1 shall be associated with Contract No. HK/2009/02 upon commencement of marine works under DP3 at WCR3 area.
- The water quality monitoring station RW21-P789 was adjusted to RW21-P789E and RW21-P789W since 28 November 2016 ebb-tide.
- The water quality monitoring was reverted to previous monitoring station RW21-P789 from PW21-P789E and RW21-P789W from 25 January 2017 onwards.

WATER QUALITY PARAMETERS

4.3.4. Monitoring of dissolved oxygen (DO), turbidity and suspended solids (SS) shall be carried out at WSD flushing water intakes and cooling water intakes. DO and Turbidity are measured in-situ while SS is determined in laboratory.

4.3.5. In association with the water quality parameters, other relevant data shall also be measured, such as monitoring location/position, time, sampling depth, water temperature, pH, salinity, dissolved oxygen (DO) saturation, weather conditions, sea conditions, tidal stage, and any special phenomena and work underway at the construction site etc.

SAMPLING PROCEDURES AND MONITORING EQUIPMENT

4.3.6. The interval between two sets of monitoring should not be less than 36 hours except where there are exceedances of Action and/or Limit Levels, in which case the monitoring frequency will be increased. ***Table 4.4*** shows the proposed monitoring frequency and water quality parameters. Duplicate in-situ measurements and water sampling should be carried out in each sampling event. For selection of tides for in-situ measurement and water sampling, tidal range of individual flood and ebb tides should be not less than 0.5m.

Table 4.4 Marine Water Quality Monitoring Frequency and Parameters

Activities	**Monitoring Frequency[1]**	**Parameters[2]**
During the 4-week baseline monitoring period	Three days per week, at mid-flood and mid-ebb tides	Turbidity, Suspended Solids (SS), Dissolved Oxygen (DO), pH, Temperature, Salinity
During marine construction works	Three days per week, at mid-flood and mid-ebb tides	Turbidity, Suspended Solids (SS), Dissolved Oxygen (DO), pH, Temperature, Salinity
After completion of marine construction works	Three days per week, at mid-flood and mid-ebb tides	Turbidity, Suspended Solids (SS), Dissolved Oxygen (DO), pH, Temperature, Salinity

Notes:

1. For selection of tides for in-situ measurement and water sampling, tidal range of individual flood and ebb tides should be not less than 0.5m.
2. Turbidity should be measured in situ whereas SS should be determined by laboratory.

DISSOLVED OXYGEN AND TEMPERATURE MEASURING EQUIPMENT

4.3.7. The instrument should be a portable, weatherproof dissolved oxygen measuring instrument complete with cable, sensor, comprehensive operation manuals, and use a DC power source. It should be capable of measuring:

- a dissolved oxygen level in the range of 0-20 mg/l and 0-200% saturation
- a temperature of 0-45 degree Celsius

4.3.8. It should have a membrane electrode with automatic temperature compensation complete with a cable. Sufficient stocks of spare electrodes and cables should be available for replacement where necessary. (e.g. YSI model 59 meter, YSI 5739 probe, YSI 5795A submersible stirrer with reel and cable or an approved similar instrument).

4.3.9. Should salinity compensation not be build-in in the DO equipment, in-situ salinity shall be measured to calibrate the DO equipment prior to each DO measurement.

TURBIDITY MEASUREMENT INSTRUMENT

4.3.10. The instrument should be a portable, weatherproof turbidity-measuring instrument complete with comprehensive operation manual. The equipment should use a DC power source. It should have a photoelectric sensor capable of measuring turbidity between 0-1000 NTU and be complete with a cable (e.g. Hach model 2100P or an approved similar instrument).

SAMPLER

4.3.11. A water sampler comprises a transparent PVC cylinder, with a capacity of not less than 2 litres, and can be effectively sealed with latex cups at both ends. The 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 (e.g. Kahlsico Water Sampler or an approved similar instrument).

SAMPLE CONTAINER AND STORAGE

4.3.12. Water samples for suspended solids measurement should be collected in high-density polythene bottles, packed in ice (cooled to 4°C without being frozen), and delivered to ALS Technichem (HK) Pty Ltd. as soon as possible after collection for analysis.

WATER DEPTH DETECTOR

4.3.13. A portable, battery-operated echo sounder shall be used for the determination of water depth at each designated monitoring station. This unit can either be handheld or affixed to the bottom of the workboat, if the same vessel is to be used throughout the monitoring programme.

SALINITY

4.3.14. A portable salinometer capable of measuring salinity in the range of 0-40 ppt shall be provided for measuring salinity of the water at each of monitoring location.

MONITORING POSITION EQUIPMENT

4.3.15. A hand-held or boat-fixed type digital Global Positioning System (GPS) with waypoint bearing indication or other equivalent instrument of similar accuracy shall be provided and used during monitoring to ensure the monitoring vessel is at the correct location before taking measurements.

CALIBRATION OF IN-SITU INSTRUMENTS

4.3.16. All in-situ monitoring instrument shall be checked, calibrated and certified by a laboratory accredited under HOKLAS or equivalent before use, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the water quality monitoring. Responses of sensors and electrodes should be checked with certified standard solutions before each use. Wet bulb calibration for a DO meter shall be carried out before measurement at each monitoring location.

4.3.17. For the on site calibration of field equipment by the ET, the BS 127:1993, "Guide to Field and on-site test methods for the analysis of waters" should be observed.

4.3.18. Sufficient stocks of spare parts should be maintained for replacements when necessary. Backup monitoring equipment shall also be made available so that monitoring can proceed uninterrupted even when some equipment is under maintenance, calibration, etc.

4.3.19. Current calibration certificates of equipments are presented in ***Appendix 4.2***.

LABORATORY MEASUREMENT / ANALYSIS

4.3.20. Analysis of suspended solids has been carried out in a HOKLAS accredited laboratory, ALS Technichem (HK) Pty Ltd. Water samples of about 1L shall be collected at the monitoring stations for carrying out the laboratory SS determination. The SS determination work shall start within 24 hours after collection of the water samples. The SS determination shall follow APHA 19ed or equivalent methods subject to the approval of IEC and EPD.

ENHANCED WATER QUALITY MONITORING IN THE EX-WAN CHAI PUBLIC CARGO WORKING AREA AND THE CAUSEWAY BAY TYPHOON SHELTER

4.3.21. The enhanced water quality monitoring and audit programme is to avoid aggravation of odour nuisance from seawater arising from temporary reclamation in the ex-Wan Chai Public Cargo Working Area and the Causeway Bay Typhoon Shelter.

4.3.22. Dissolved oxygen monitoring at the intakes C6 and C7 in Causeway Bay Typhoon Shelter when there is temporary reclamation in Causeway Bay Typhoon Shelter and at the south-western and south-eastern corners of the ex-Wan Chai Public Cargo Working Area. The proposed water quality monitoring stations of the Project are shown in ***Table 4.5*** and ***Figure 4.1***.

Table 4.5 Marine Water Quality Stations for Enhanced Water Quality Monitoring

Station	Location
C6	Excelsior Hotel
C7	Windsor House
Ex-WPCWA-SW	South-western of the ex-Wan Chai Public Cargo Working Area
Ex-WPCWA-SE	South-eastern of the ex-Wan Chai Public Cargo Working Area

Remarks:

1. Enhanced DO monitoring at Windsor House Cooling (Station Ref: C7) was temporarily suspended since 22 October 2014 with respect to the formation of temporary reclamation zone TS3 and was resumed from 1 February 2018 onwards with respect to the completion of removal of temporary reclamation zone.
2. Enhanced DO monitoring at Monitoring station Ex-WPCWA SE was temporarily suspended from 31 August 2015 with respect to seawall reinstatement works and formation of active works area. The Enhance DO monitoring at Ex-WPCWA SE was resumed on 11 May 2016 due to completed section of seawall reinstatement works at Ex-PCWA.

4.3.23. The monitoring of dissolved oxygen are to be carried out 3 days per week, at mid-flood and mid-ebb tides for 3 water depths (1m below water surface, mid-depth and 1m above sea bed, except where the water depth less than 6m, the mid-depth may be omitted. If the water depth be equal to or less than 3m, only the mid-depth will be monitored).

DAILY SS MONITORING AND 24 HOURS TURBIDITY MONITORING SYSTEM

4.3.24. During dredging of the sediment at the south-western corner of the Causeway Bay Typhoon Shelter, daily monitoring of suspended solids and 24 hour monitoring of turbidity at the cooling water intakes (C6 and C7) shall be conducted.

4.3.25. The 24 hours monitoring of turbidty at the cooling water intakes (C6 and C7) shall be established by setting up a continuous water quality monitoring station in front of the intakes during the dredging activities. The monitoring system include the turbidity sensor and data logger which is capable of data capturing at every 5 minutes. The data sahll be downloaded daily and compared with the Action and Limit level determined during the baseline water qualtiy monitoring at the cooling water intake locations.

ADDITIONAL DISSOVLED OXYGEN MONITORING FOR CULVERT L WATER DISCHARGE FLOW

4.3.26. In response to the Condition 2.18 of the Environmental Permit no. EP-356/2009 requiring that a silt curtain / impermeable barrier system be installed to channel water discharge flow from Culvert L to locations outside the embayment area, a proposed replacement of the

requirement with additional dissolved oxygen monitoring has been conducted at three monitoring stations, namely A, B and C between the eastern seawall of Central Reclamation Phase III and the HKCEC Extension since November 2011 under EP-356/2009 so that DO level between the eastern seawall of Central Reclamation Phase II and the HKCEC extension could be continuously monitored.

4.3.27. With respect to the commencement of dredging works under HK/2012/08 and the installation of MTR precast protection unit, the enhanced water quality monitoring for Culvert L was temporarily suspended since 24 July 2013

4.3.28. The monitoring of dissolved oxygen are to be carried out once per week, at mid-flood and mid-ebb tides for 3 water depths (1m below water surface, mid-depth and 1m above sea bed, except where the water depth less than 6m, the mid-depth may be omitted. If the water depth be equal to or less than 3m, only the mid-depth will be monitored).

5. Monitoring Results

5.0.1. The environmental monitoring will be implemented based on the division of works areas of each designed project managed under different contracts with separate FEP applied by individual contractors. Overall layout showing work areas of various contracts, latest status of work commencement and monitoring stations is shown in ***Figure 2.1*** and ***Figure 4.1***. The monitoring results are presented in according to the Individual Contract(s).

5.0.2. In the reporting month, the concurrent contracts are as follows:

- Contract no. HK/2009/02 Wan Chai Development Phase II – Central-Wan Chai Bypass at Wan Chai East
- Contract no. HY/2009/19- Central- Wan Chai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link

5.0.3. As confirmed by WDII RSS, the marine construction works under Contract HK/2009/01 have been completed since 24 July 2017, the monitoring association with Contract HK/2009/01 and relevant reporting has been ceased in the reporting month.

5.0.4. As confirmed by CWB RSS, the marine construction works under Contract HY/2009/15 and relevant reporting have been completed by 19 June 2017, the monitoring association with Contract HY/2009/15 and relevant reporting has been ceased in the reporting month.

5.0.5. As confirmed by CWB RSS, the marine construction works under Contract HY/2010/08 and relevant reporting have been completed by 21 September 2018, the air monitoring stations namely CMA3a - CWB PRE Site Office and noise monitoring station namely M2b – Noon day gun area and M3a - Tung Lo Wan Fire Station association with Contract HY/2010/08 and relevant reporting has been ceased in the reporting month.

5.0.6. As confirmed by WDII RSS, the marine construction works under HK/2012/08 and relevant reporting have been completed by 2 January 2019, the air monitoring stations namely CMA5b - Pedestrian Plaza, CMA6a – WDII PRE Office and noise monitoring station namely M1a - Footbridge for Ex-Harbour Road Sports Centre association with Contract HK/2012/08 and relevant reporting has been ceased in the reporting month

5.0.7. The environment monitoring schedules for reporting month and coming month are presented in ***Appendix 5.1***.

5.1 Noise Monitoring Results

Contract no. HK/2009/02 - Wan Chai Development Phase II – Central – Wan Chai Bypass at WanChai East

5.1.1. The proposed division of noise monitoring stations are summarized in ***Table 5.1*** below.

Table 5.1 Noise Monitoring Station for Contract nos. HK/2009/02

Station	Description
M1a	Footbridge for Ex-Harbour Road Sports Centre

5.1.2. No action or limit level exceedances was recorded in the reporting period.

5.1.3. Noise monitoring results measured in this reporting period are reviewed and summarized. Details of noise monitoring results and graphical presentation can be referred in ***Appendix 5.2.***

Contract no. HY/2009/19- Wan Chai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link

5.1.4. The proposed division of noise monitoring stations are summarized in ***Table 5.3*** below.

Table 5.3 Noise Monitoring Station for Contract no. HY/2009/19

Station	Description
M4b	Victoria Centre
M5b	City Garden
M6	HK Baptist Church Henrietta Secondary School

5.1.5. No action or limit level exceedances was recorded in the reporting period.

5.1.6. Noise monitoring results measured in this reporting period are reviewed and summarized. Details of noise monitoring results and graphical presentation can be referred in ***Appendix 5.2.***

5.2 Air Monitoring Results

Contract no. HK/2009/02 - Wan Chai Development Phase II – Central – Wan Chai Bypass at WanChai East

5.2.1 Air monitoring was commenced in mid-January 2011 for the land-filling work for Contract no. HK/2009/02. The proposed division of air monitoring stations are summarized in ***Table 5.6*** below.

Table 5.6 Air Monitoring Station for Contract no. HK/2009/02

Station	Description
CMA3a	CWB PRE Site Office
CMA4a	Society for the Prevention of Cruelty to Animals

5.2.2 No action or limit level exceedance was recorded in the reporting period.

5.2.3 Air quality monitoring results measured in this reporting period are reviewed and summarized. Details of air monitoring results and graphical presentation can be referred in ***Appendix 5.3***.

Contract no. HY/2009/19- Wan Chai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link

5.2.4 The proposed division of air monitoring stations are summarized in ***Table 5.8*** below.

Table 5.8 Air Monitoring Stations for Contract no. HY/2009/19

Station	Description
CMA1b	Harbour Grand Hotel Boundary Wall
CMA2a	Causeway Bay Community Centre

5.2.5 No action or limit level exceedance was recorded in the reporting period.

5.2.6 Air quality monitoring results measured in this reporting period are reviewed and summarized. Details of air monitoring results and graphical presentation can be referred in ***Appendix 5.3***.

5.3 Water quality monitoring Results

5.3.1 Action and Limit level of water quality monitoring was transited from dry season to wet season from 01 April 2019.

5.3.2 Water quality monitoring station C7 and Enhance DO monitoring station C6 shall be associated with Contract HY/2010/08, upon confirmation of marine construction works completion under Contract HY/2009/15 at CBTS area and Ex-PCWA area since 19 June 2017.

5.3.3 Referring to CWB RSS confirmation on the completion of marine construction activities within the Ex-PCWA area and the completion of the post construction water quality monitoring, the respective Enhance DO Monitoring within Ex-PCWA for monitoring station Ex-PCWA SE and Ex-PCWA SW was temporarily suspended since 07 March 2017 ebb tide onwards.

5.3.4 With respect to the reinstatement of the silt screen system for Cooling Water Intakes P7, P8, P9 and WSD Water Intake RW21, the respective water quality monitoring was reverted to the previous monitoring location for Water Quality Monitoring Station RW21-P789 from water quality stations RW21-P789 East (RW21-P789E) and RW21-P789 West (RW21-P789W) from 25 January 2017 onwards.

5.3.5 With respect to the temporarily suspension of marine construction works at WCR3 Area by Contract HK/2009/02, the installed silt screen for intake group (P7, P8, P9 and WSD21) was removed on 26 November 2016.

5.3.6 As advised by the Contractor of HK/2009/01, all silt screen remains removal works at P1, P3, P4, P5 and C1 water quality monitoring stations were completed on 8 May 2016.

5.3.7 With respect to the marine works undertaken at WCR3 by Contract HK/2009/02, the respective water quality monitoring station C1 associated with Contract HK/2009/01 was updated as in association with Contract HK/2009/01 and Contract HK/2009/02.

5.3.8 With respect to the marine works undertaken at CBTS by Contract HY/2010/08, the respective water quality monitoring station C7 associated with Contract HY/2009/15 was updated as in association with Contract HY/2009/15 and Contract HY/2010/08.

5.3.9 With respect to the marine works undertaken at HKCEC2 by Contract HK/2012/08, the respective water quality monitoring station WSD19, P1, P3, P4, and P5 were associated with Contract HK/2012/08.

5.3.10 As confirmed by WDII RSS, the marine construction works under Contract HK/2009/01 have been completed since 24 July 2017, the monitoring association with Contract HK/2009/01 and relevant reporting has been ceased in the reporting month.

5.3.11 As confirmed by CWB RSS, the marine construction works under Contract HY/2009/15 and relevant reporting have been completed by 19 June 2017, the monitoring association with Contract HY/2009/15 and relevant reporting has been ceased in the reporting month.

5.3.12 Referring to CWB RSS confirmation on the completion of marine works within the TS3 area and the completion of the post construction water quality monitoring, the respective water quality monitoring within TS3 for monitoring station C7 was temporarily suspended since 29 October 2018 onwards.

5.3.13 Referring to WDII RSS confirmation on the completion of marine works under HK/2012/08 within the EP-356 area on 2 January 2019 and the completion of the post construction water quality monitoring (From 2 January 2019 to 30 January 2019), the respective water quality monitoring stations P1, P3, P4, P5 and WSD19 within EP-356 area was temporarily suspended since 15 February 2019 onwards.

Table 5.11 Water quality Monitoring Stations for contracts with respect to remaining DP3 work areas after the completion of DP5 & DP6 in 2012 and intake diversion in 2013

Contract No.	Remaining DP3 and work area(s)	Relevant Water quality monitoring Stations,	Division of WQM w.r.t tentative works commenced / to be commenced
HK/2009/02	WCR3, WCR4, TWCR4	RW21-P789[2], C1[1]	Apr 2013
HK/2012/08	HKCEC2W, HKCEC2E	WSD19, P1[3], P3[3], P4[3], P5[3]	Aug 2013
HY/2010/08	TCBR3, TCBR4	C6[4], C7[4] (plus enhanced DO monitoring)	Mar 2014

Remarks:

1. The water quality monitoring station C1 shall be associated with Contract No. HK/2009/02 upon commencement of marine works under DP3 at WCR3 area.
2. 4 intakes (re-provisioned Wanchai WSD intake, Great Eagle Centre, China Resources Centre & Sun Hung Kai Centre constructed adjacent to each other) taken as a single group for silt screen protection and monitoring. Re-provisioned intake reference: P1: HKCEC Phase 1; P3: APA, P4: Shui On; P5: Government Buildings (Wanchai Tower / Revenue Tower / Immigration Tower)
3. The water quality monitoring stations for WSD19, P1, P3, P4, P5 shall be associated with Contract No. HK/2009/01 prior to their transition to Contract HK/2012/08.
4. Enhance DO monitoring station C6 and water quality monitoring station C7 shall be associated with Contract HY/2010/08, upon confirmation of marine construction works completion under Contract HY/2009/15 at CBTS area and Ex-PCWA area since 19 June 2017.
5. Referring to CWB RSS confirmation on the completion of marine construction activities within the TS3 area and the completion of the post construction water quality monitoring, the respective Enhance DO Monitoring within TS3 for monitoring station C6 and C7 was temporarily suspended since 05 March 2018 onwards.
6. With respect to WDII RSS confirmation on the completion of marine works under Contract HK/2009/01 since 24 July 2017, the association of WQM station C1 under Contract HK/2009/01 has been ceased in the November 2017 reporting month.

7. Referring to CWB RSS confirmation on the completion of marine works within the TS3 area and the completion of the post construction water quality monitoring, the respective water quality monitoring within TS3 for monitoring station C7 was temporarily suspended since 29 October 2018 onwards
8. Referring to WDII RSS confirmation on the completion of marine works under HK/2012/08 within the EP-356 area on 2 January 2019 and the completion of the post construction water quality monitoring (From 2 January 2019 to 30 January 2019), the respective water quality monitoring stations P1, P3, P4, P5 and WSD19 within EP-356 area was temporarily suspended since 15 February 2019 onwards.

Contract no. HK/2009/02 - Wan Chai Development Wan Chai Development Phase II – Central – Wan Chai Bypass at WanChai East

5.3.14 Water quality monitoring for Contract no. HK/2009/02 was commenced on 8 July 2010. The proposed division of water quality monitoring stations are summarized in ***Table 5.13*** below.

Table 5.13 Water quality Monitoring Stations for Contract no. HK/2009/02

Station Ref.	Location	Easting	Northing
Cooling Water Intake			
C1	HKCEC Extension	835885.6	816223.0
Cooling Water Intake / WSD Salt Water Intake			
RW21-P789	Great Eagle Centre/ Sun Hung Kai Centre/ WSD Wanchai salt water intake / China Resources Building	836268.0	816020.0

5.3.15 No action level exceedance was recorded in the reporting period.

5.3.16 Water quality monitoring results measured in this reporting period are reviewed and summarized. Details of water quality monitoring results and graphical presentation can be referred in ***Appendix 5.4.***

5.4 Waste Monitoring Results

Contract no. HK/2009/02 - Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai East

5.4.1 Details of the waste disposal in the reporting period are summarized in ***Table 5.18***.

Table 5.18 Details of Waste Disposal for Contract no. HK/2009/02

Waste Type	Quantity this month	Cumulative Quantity-to-Date	Disposal / Dumping Grounds
Inert C&D materials disposed, m^3	NIL	313695.5	TKO137 / TM 38
Inert C&D materials recycled, m^3	NIL	18161	N/A
Non-inert C&D materials disposed, m^3	NIL	1515.103	SENT Landfill
Non-inert C&D materials recycled, m^3	N/A	N/A	N/A
Chemical waste disposed, kg	NIL	13860	SENT Landfill
Marine Sediment (Type 1 – Open Sea Disposal), m^3	NIL	240222 (Bulk volume)	South of Cheung Chau
Marine Sediment (Type 1 – Open Sea Disposal (Dedicate Sites) & Type 2 – Confined Marine Disposal) , m^3	NIL	146445 (Bulk volume)	East of Sha Chau

Contract no. HY/2009/15 - Central-Wanchai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section)

5.4.2 Details of the waste disposal in the reporting period are summarized in ***Table 5.19***

Table 5.19 Details of Waste Disposal for Contract no. HY/2009/15

Waste Type	Quantity this month	Cumulative Quantity-to-Date	Disposal / Dumping Grounds	Remarks
Inert C&D materials disposed, m^3	NIL	141579.2	Tuen Mun Area 38	NIL
	NIL	65216	TKO137 FB	NIL
Inert C&D materials recycled, m^3	NIL	8127.21	HY/2010/08	NIL
	NIL	304	Ex-PCWA	NIL
	NIL	111.9	TS4	NIL
Non-inert C&D materials disposed, m^3	NIL	252.2	SENT Landfill	NIL
Non-inert C&D materials recycled, kg	NIL	299361.5	N/A	NIL
Chemical waste disposed, kg	NIL	8,200	N/A	NIL
Marine Sediment (Type 1 – Open Sea Disposal), m^3	NIL (Bulk Volume)	156909 (Bulk Volume)	Cheung Chau South	Dredging from TCBR1E / TCBR1W / TCBR2/ TCBR3 / TCBR4 / Maintenance dredging
Marine Sediment (Type 1 – Open Sea Disposal (Dedicate Sites) & Type 2 – Confined Marine Disposal) , m^3	NIL (Bulk Volume)	327746 (Bulk Volume)	East of Sha Chau / South of the Brothers	Dredging from TCBR1E / TCBR1W / TCBR2/ TCBR3 / TCBR4 / Maintenance dredging
Marine Sediment (Type 3 – Special Treatment / Disposal contained in Geosynthetic Containers) m^3	NIL (Bulk Volume)	12640 (Bulk Volume)	East of Sha Chau / South of the Brothers	Dredging from TCBR1W / Maintenance dredging
Marine Sediment (Type 2 – Confined Marine Disposal), m^3	NIL	9350 (Bulk Volume)	East of Sha Chau	Dredging from Eastern Breakwater of CBTS

Waste Type	Quantity this month	Cumulative Quantity-to-Date	Disposal / Dumping Grounds	Remarks
Marine Sediment (Type 1 – Open Sea Disposal) , m3	NIL (Bulk Volume)	600 (Bulk Volume)	East Sha Chau / South of The Brothers	Dredging from Phase 3 Mooring Re-arrangement
Marine Sediment (Type 2– Confined Marine Disposal) , m3	NIL (Bulk Volume)	14,780 (Bulk Volume)	South of The Brothers	Dredging from Phase 3 Mooring Re-arrangement
Marine Sediment (Type 3 – Special Treatment / Disposal contained in Geosynehetic Containers) , m3	NIL (Bulk Volume)	2,760 (Bulk Volume)	South of The Brothers	Dredging from Phase 3 Mooring Re-arrangement

Contract no. HY/2009/19 –Central- WanChai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link

5.4.3 Details of the waste disposal in the reporting period are summarized in ***Table 5.20***.

Table 5.20 Details of Waste Disposal for Contract no. HY/2009/19

Waste Type	Quantity this month	Cumulative Quantity-to-Date	Disposal / Dumping Grounds
Inert C&D materials disposed, m^3	NIL	355921.04	TM38
Inert C&D materials recycled, m^3	NIL	59367	N/A
Non-inert C&D materials disposed, m^3	NIL	1068.6	N/A
Non-inert C&D materials recycled, kg	NIL	333.14	N/A
Chemical waste disposed, L	NIL	2.12	N/A
Marine Sediment (Type 1 – Open Sea Disposal), m^3	NIL	162	South Cheung Chau
Marine Sediment (Type 2 – Confined Marine Disposal) , m^3	NIL	681	East Sha Chau
Marine Sediment (Type 1 – Open Sea Disposal (Dedicate Sites) & Type 2 – Confined Marine Disposal) , m3	NIL	4976.00	East Sha Chau

Contract no. HK/2012/08 –Wan Chai Development Phase II – Central- Wan Chai Bypass at Wan Chai West

5.4.4 Details of the waste disposal in the reporting period are summarized in ***Table 5.21***.

Table 5.21 Details of Waste Disposal for Contract no. HK/2012/08

Waste Type	Quantity this month	Cumulative Quantity-to-Date	Disposal / Dumping Grounds
Inert C&D materials disposed, m^3 *	NIL NIL	4131 273	TM38 TKO137
Inert C&D materials recycled, m^3	NIL	NIL	N/A
Non-inert C&D materials disposed, m^3	NIL	400	SENT
Non-inert C&D materials recycled, kg	NIL	NIL	N/A
Chemical waste disposed, L	NIL	NIL	N/A
Marine Sediment (Type 1 – Open Sea Disposal), m^3	NIL (Bulk volume)	31759 (Bulk volume)	South of Cheung Chau
Marine Sediment (Type 1 – Open Sea Disposal (Dedicate Sites) & Type 2 – Confined Marine Disposal) , m3	NIL (Bulk volume)	108542 (Bulk volume)	South of The Brothers (from 27 Aug 2013 onwards)

Contract no. HY/2010/08 –Central - Wan Chai Bypass (CWB) –Tunnel (Slip Road 8)

5.4.5 Details of the waste disposal in the reporting period are summarized in ***Table 5.22***

Table 5.22 Details of Waste Disposal for Contract no. HY/2010/08

Waste Type	Quantity this month	Cumulative Quantity-to-Date	Disposal / Dumping Grounds
Inert C&D materials disposed, m^3	NIL NIL	95094.759 19739.4	TM38 TKO137
Inert C&D materials recycled, m^3	NIL	NIL	N/A
Non-inert C&D materials disposed, m^3	NIL	NIL	N/A
Non-inert C&D materials recycled, kg	NIL	NIL	N/A
Chemical waste disposed, L	NIL	NIL	N/A
Marine Sediment (Type 1 – Open Sea Disposal)	NIL	62559.4	South Cheung Chau / Brothers Island *
Marine Sediment (Type 1 – Open Sea Disposal (Dedicate Sites) & Type 2 – Confined Marine disposal)	NIL	28309.2	Brothers Island
Marine Sediment (Type 3 – Special Treatment)	NIL	7780	Brothers Island

6. Compliance Audit

6.0.1. The Event Action Plan for construction noise, air quality and water quality are presented in ***Appendix 6.1***.

6.1 Noise Monitoring

Contract no. HK/2009/02 - Wan Chai Development Phase II – Central – Wan Chai Bypass at WanChai East

6.1.1 No action or limit level exceedance was recorded in the reporting period.

Contract no. HY/2009/19 – Central – Wanchai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link

6.1.2 No action or limit level exceedance was recorded in the reporting period.

6.2 Air Monitoring

Contract no. HK/2009/02 – Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai East (CWB Tunnel)

6.2.1 No action or limit level exceedance was recorded in the reporting period.

Contract no. HY/2009/19 – Central – Wanchai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link

6.2.2 No action or limit level exceedance was recorded in the reporting period.

6.3 Water Quality Monitoring

Contract no. HK/2009/02 - Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai East

6.3.1 No action or limit level exceedance was recorded in the reporting period.

6.4 Review of the Reasons for and the Implications of Non-compliance

6.4.1 There was no non-compliance from the site audits in the reporting period. The observations and recommendations made in each individual site audit session were presented in Section 8.

6.5 Summary of action taken in the event of and follow-up on non-compliance

6.5.1 There was no particular action taken since no non-compliance was recorded from the site audits in the reporting period.

7. Cumulative Construction Impact due to the Concurrent Projects

7.0.1. According to Condition 3.4 of the EP-356/2009, this section addresses the relevant cumulative construction impact due to the concurrent activities of the current projects including the Central Reclamation Phase III, Central-Wanchai Bypass and Island Eastern Corridor Link projects.

7.0.2. According to the Final EM&A Report of Central Reclamation Phase III (CRIII) for Contract HK 12/02, the major construction activities were completed by end of January 2014 and no construction activities were undertaken thereafter and the water quality monitoring was completed in October 2011 and no Project-related exceedance was recorded for air and noise monitoring. It can be concluded that cumulative construction impact due to the concurrent activities of the current projects with the Central Reclamation Phase III (CRIII) was insignificant.

7.0.3. According to the construction programme of Central-Wanchai Bypass at Wanchai West at the Central Reclamation Phase III area include roadworks, drainage, seawall coping and junction modification were performed in April 2019 reporting period. As no project related exceedance were recorded during the reporting period, cumulative construction impact due to the concurrent activities of the current projects with the Central Reclamation Phase III (CRIII) was considered as insignificant.

7.0.4. According to the construction programme of Wan Chai Development Phase II, Central-Wan Chai Bypass and Island Eastern Corridor Link projects, the major construction activities under Wan Chai Development Phase II were road and drains construction and TWCR4 reinstatement at Wan Chai. The major construction activities under Central-Wan Chai Bypass and Island Eastern Corridor Link Projects were ventilation building ABWF works and junction modification at Central; road works, drainage improvement work, utility diversion works and landscape works at Victoria Park; bridge noise enclosure installation works, road works, drainage works, soft landscape works and ventilation building ABWF work at North Point area in the reporting period. In addition, other non-Wan Chai Development Phase II, Central-Wan Chai Bypass and Island Eastern Corridor Link projects were observed undertaken at Wan Chai North and North Point area.

7.0.5. No significant air impact from construction activities was anticipated in the reporting month. Besides, no project related exceedance was recorded during the air and noise environmental monitoring events in the reporting month. Thus, it is evaluated that the cumulative construction impact from the concurrent projects including Central Reclamation Phase III (CRIII), Wan Chai Development Phase II (WDII), Central-WanChai Bypass (CWB), Island Eastern Corridor Link projects (IECL) was insignificant.

8. Environmental Site Audit

8.0.1. During this reporting month, weekly environmental site audits were conducted for Contracts no. HK/2009/02, HY/2009/19, HK/2012/08 and HY/2010/08. No non-conformance was identified during the site audits.

8.0.2. Site inspections for Contract no. HK/2009/02 were conducted in the reporting period. The results of these inspection and outcomes are summarized in ***Table 8.2***.

Table 8.2 Summary of Environmental Inspection for Contract HK/2009/02

Item	Date	Observation	Action taken by Contractor	Completion date
190328_01	28 Mar 2019	The inner layer of silt curtain shall be fully enclose to avoid potential muddy dispersion (TWCR4)	The concerned marine works was suspended	Completed as observed on 4 April 2019
190423_1	23 Apr 2019	Damaged Silt curtain deployed around seawater intake shall be repair (RW21-P789)	Damaged section of silt curtain was repaired.	Completed as observed on 2 May 2019

8.0.3. Site inspections for Contract no. HY/2009/19 were carried out in the reporting period. No observation was found in the reporting period.

8.0.4. Site inspections for Contract no. HK/2012/08 were carried out in the reporting period. No observation was found in the reporting period.

8.0.5. Site inspections for Contract no. HY/2010/08 were conducted in the reporting period. No observation was found in the reporting period.

9. Complaints, Notification of Summons and Prosecution

9.0.1. No environmental complaint was received in the reporting period.

9.0.2. The details of cumulative complaint log and updated summary of complaints are presented in ***Appendix 9.1***

9.0.3. Cumulative statistic on complaints and successful prosecutions are summarized in ***Table 9.1*** and ***Table 9.2*** respectively.

Table 9.1 Cumulative Statistics on Complaints

Reporting Period	No. of Complaints
Commencement works (Mar 2010) to last reporting month	50
April 2019	0
Total	**50**

Table 9.2 Cumulative Statistics on Successful Prosecutions

Environmental Parameters	Cumulative No. Brought Forward	No. of Successful Prosecutions this month (Offence Date)	Cumulative No. Project-to-Date
Air	-	0	0
Noise	-	0	0
Water	-	0	0
Waste	-	0	0
Total	**-**	**0**	**0**

10. Conclusion

10.0.1. The EM&A programme was carried out in accordance with the EM&A Manual requirements, minor alterations to the programme proposed were made in response to changing circumstances.

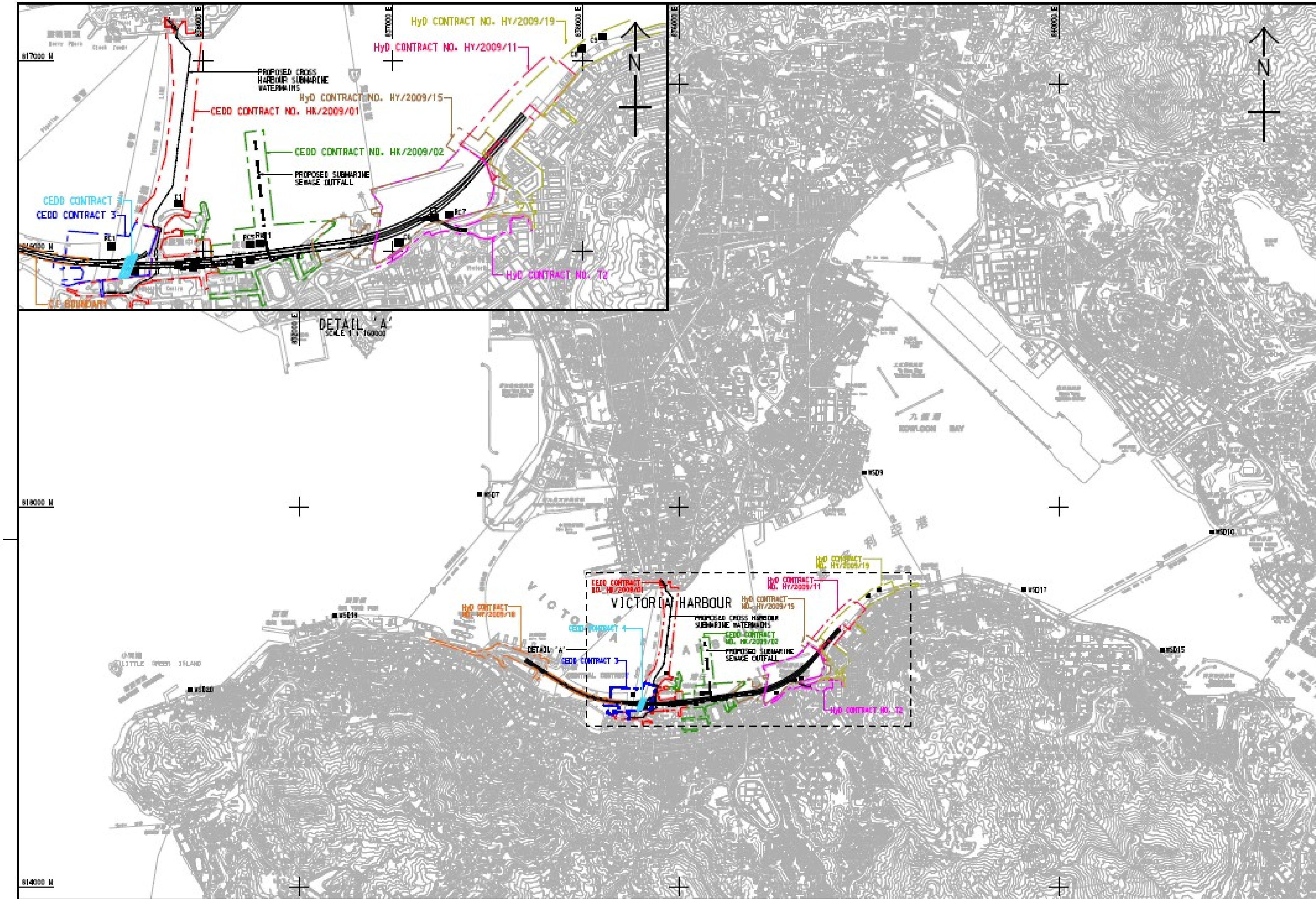
10.0.2. The scheduled construction activities and the recommended mitigation measures for the coming month are listed in ***Table 10.1***.

Table 10.1 Construction Activities and Recommended Mitigation Measures in Coming Reporting Month

Contract No.	Key Construction Works	Recommended Mitigation Measures
HK/2009/02	• Excavation and placing concrete block for Landing Steps	• Daily visual inspection of silt screen to ensure the integrity and condition of silt screen. • Implement silt screen in accordance with the associated plans submitted to EPD. • Ensure proper deployment of silt curtain around marine construction works area.
HY/2009/19	• Seawall block reinstatement near box culvert T1	• Ensure proper deployment of silt curtain around marine construction works area

Figure 2.1

Project Layout



LEGEND:

■ WATER QUALITY MONITORING STATIONS

COOLING WATER INTAKES

C1 HONG KONG CONVENTION AND EXHIBITION CENTRE EXTENSION
C2 TELECOM HOUSE/HK ACADEMY FOR PERFORMING ARTS / SHUI ON CENTRE
C3 HONG KONG CONVENTION AND EXHIBITION CENTRE PHASE I
C4 WAN CHAI TOWER AND GREAT EAGLE CENTRE
C5 SUN HUNG KAI CENTRE
C6 PROPOSED EXHIBITION STATION / WORLD TRADE CENTRE
C7 WINDSOR HOUSE
C8 CITY GARDEN
C9 PROVIDENT CENTRE
RC1 PROPOSED HKAPA EXTENSION
RC5 SUN HUNG KAI CENTRE (REPROVISION)
RC7 WINDSOR HOUSE (TEMPORARY REPROVISION)

WSD SALT WATER INTAKE

WSD21 WAN CHAI
RW21 WAN CHAI (REPROVISION)
WSD7 KOWLOON SOUTH
WSD9 TAI WAN
WSD10 CHA KWO LING
WSD15 SAI WAN HO
WSD17 QUARRY BAY
WSD19 SHEUNG WAN
WSD20 KENNEDY TOWN

DESIGNATED PROJECTS (DP)

DP1 - CENTRAL-WAN CHAI BYPASS (CWB) INCLUDING ITS ROAD TUNNEL AND SLIP ROADS
DP2 - ROAD P2 AND OTHER ROADS (PRIMARY / DISTRICT DISTRIBUTOR ROADS)
DP3 - PERMANENT AND TEMPORARY RECLAMATION WORKS INCLUDING ASSOCIATED DREDGING WORKS IN WAN CHAI DEVELOPMENT PHASE II (WDII) AREA
~~DP4 - TEMPORARY TYPHOON SHELTER~~ (DP4 NOT TO BE IMPLEMENTED)
DP5 - WAN CHAI EAST SEWAGE OUTFALL
DP6 - DREDGING FOR THE CROSS-HARBOUR WATER MAINS

DP1 IS COVERED BY EP - 364/2009
DP2 IS COVERED BY EP - 376/2009
DP3, DP5 AND DP6 ARE COVERED BY EP - 356/2009

WORKS CONTRACT	DESIGNATED PROJECT INVOLVED	CONSTRUCTION COMMENCEMENT
CEDD CONTRACT NO. HK/2009/01	DP1, DP3, DP6	APRIL 2010
CEDD CONTRACT NO. HK/2009/02	DP1, DP3, DP5	APRIL 2010
CEDD CONTRACT 3	DP1, DP3	END 2011
CEDD CONTRACT 4	DP1, DP3	END 2010
CEDD CONTRACT 5	DP2	2015
HyD CONTRACT NO. HY/2009/11	DP3	18 MARCH 2010
HyD CONTRACT NO. HY/2009/15	DP1, DP3	SEPTEMBER 2010
HyD CONTRACT NO. HY/2009/18	DP1	OCTOBER 2010
HyD CONTRACT NO. HY/2009/19	DP1	NOVEMBER 2010
HyD CONTRACT T2	DP1, DP3	MID 2013

Plot File by : 2010-3-17 CHENL

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土木工程拓展署
Civil Engineering and Development Department

WAN CHAI DEVELOPMENT PHASE II

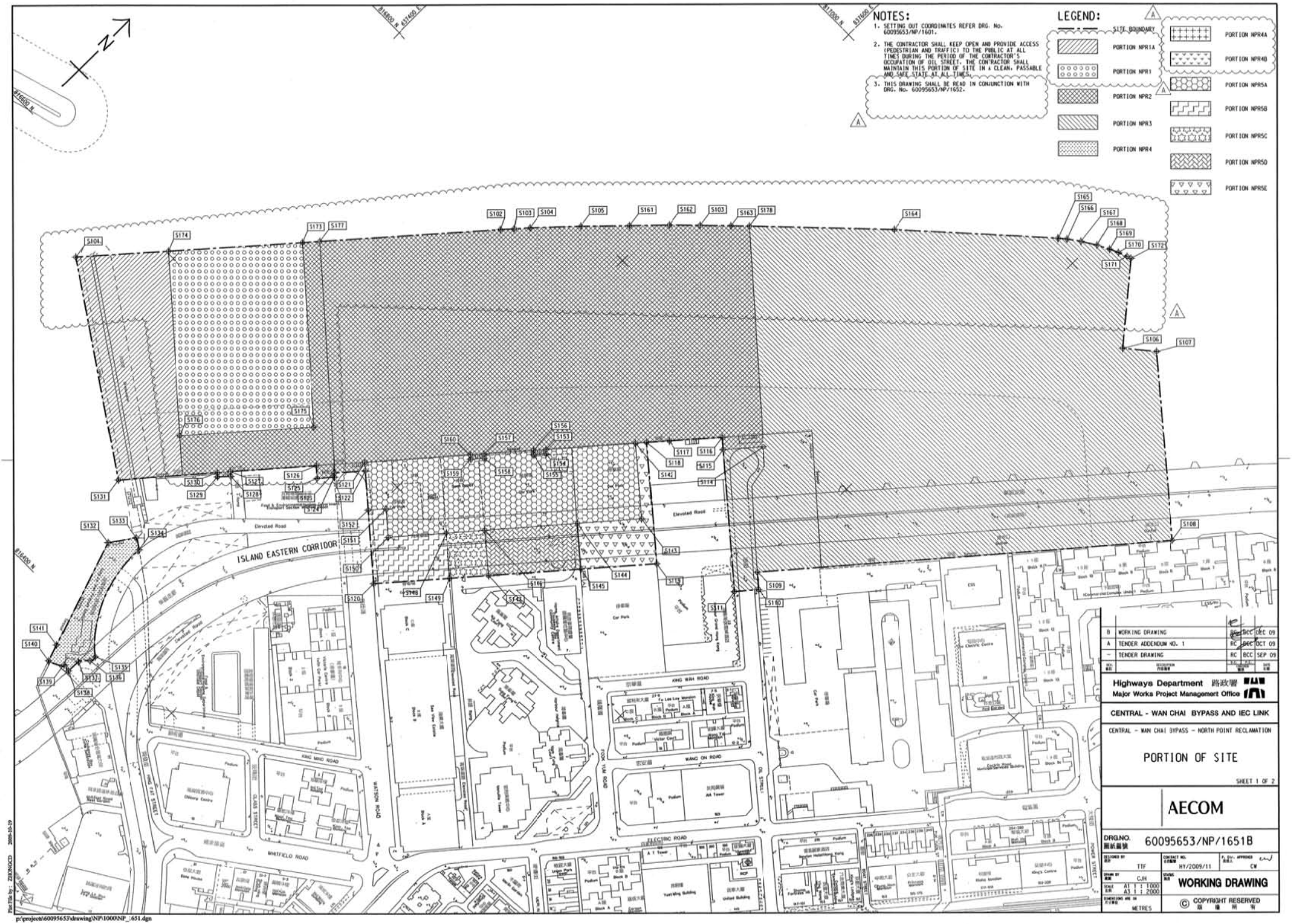
WAN CHAI DEVELOPMENT PHASE II AND CENTRAL - WAN CHAI BYPASS - SAMPLING, FIELD MEASUREMENT AND TESTING WORKS (STAGE 1)

LOCATIONS OF WATER QUALITY MONITORING STATIONS

AECOM

DRG.NO. 圖則編號 60041297/C5/SK001

DRAWN BY: ANDY
CHECKED BY: ADC
APPROVED: PMC
SCALE: A1 1:20000
DIMENSIONS ARE IN METRES


NOTES:
1. SETTING OUT COORDINATES REFER DRG. No. 60095653/NP/1601.
2. THE CONTRACTOR SHALL KEEP OPEN AND PROVIDE ACCESS (PEDESTRIAN AND TRAFFIC) TO THE PUBLIC AT ALL TIMES DURING THE PERIOD OF THE CONTRACTOR'S OCCUPATION OF OIL STREET. THE CONTRACTOR SHALL MAINTAIN THIS PORTION OF SITE IN A CLEAN, PASSABLE AND SAFE STATE AT ALL TIMES.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRG. No. 60095653/NP/1652.
LEGEND:
SITE BOUNDARY
PORTION NPR1A
PORTION NPR1
PORTION NPR2
PORTION NPR3
PORTION NPR4
PORTION NPR4A
PORTION NPR4B
PORTION NPR5A
PORTION NPR5B
PORTION NPR5C
PORTION NPR5D
PORTION NPR5E
816600 N
817400 E
817000 N
815600 E
816400 N
ISLAND EASTERN CORRIDOR
Elevated Road
KING WAH ROAD
WANG ON ROAD
ELECTRIC ROAD
KING MING ROAD
WHITFIELD ROAD
HOI TAI ROAD
MARSH ROAD
OIL STREET
CAUSEWAY BAY TYPHOON SHELTER
Car Park
Podium
Victor Court
Yue Hing Building
United Building
Kings Centre
Metro Harbour View
Metro Centre
Cityplaza
Oilsery Centre
Data House
Hong Kong Electric Centre
Hopewell Centre
Harbour Grand Hong Kong
Island Shangri-La
Pacific Place
Admiralty Centre
Tower 1
Tower 2
Tower 3
Tower 4
Tower 5
Tower 6
Tower 7
Tower 8
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Tower 10
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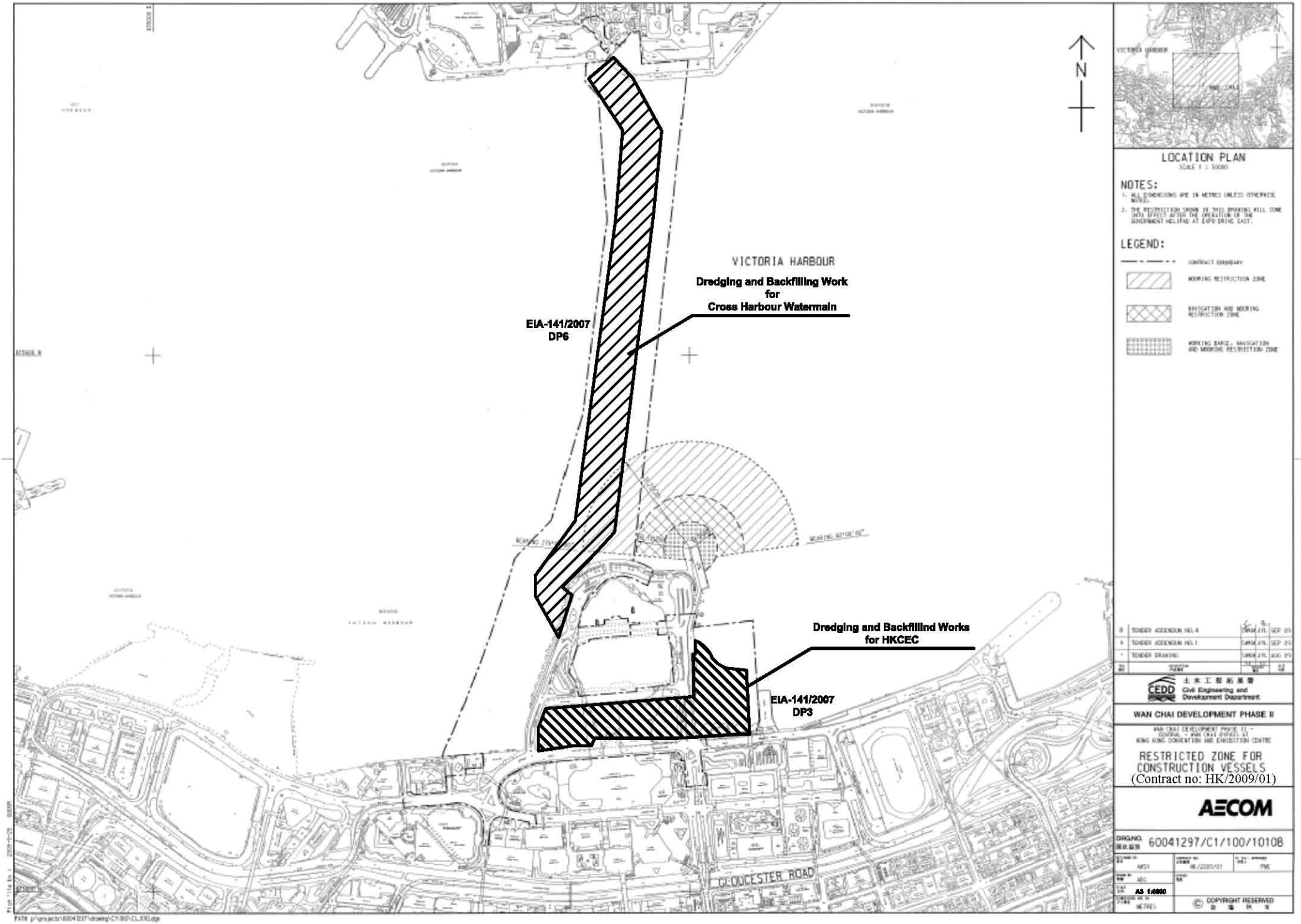
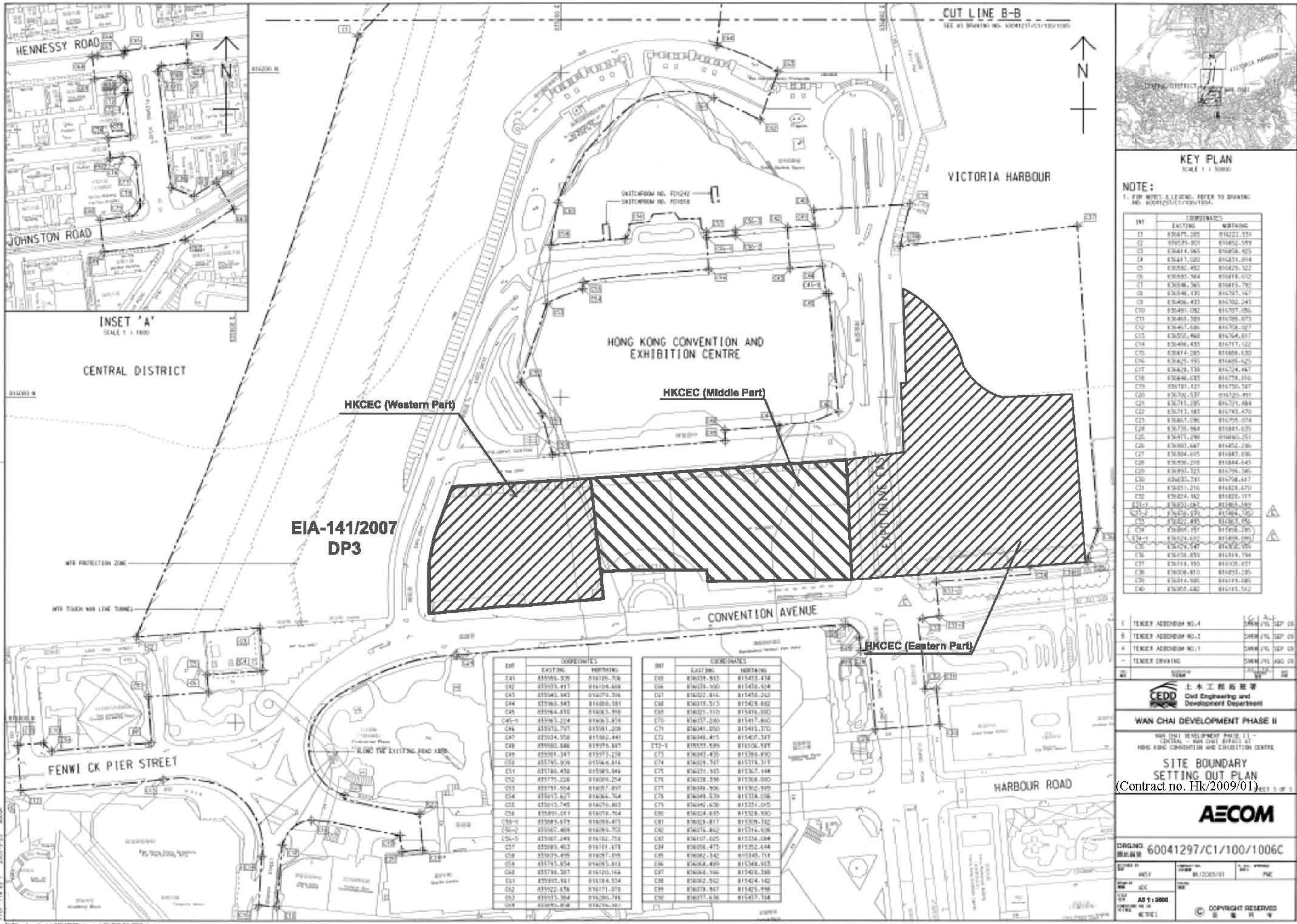
Tower 176
Tower 177
Tower 178
B WORKING DRAWING RC DEC DEC 09
A TENDER ADDENDUM NO. 1 RC DEC OCT 09
- TENDER DRAWING RC BCC SEP 09
Highways Department 路政署
Major Works Project Management Office
CENTRAL - WAN CHAI BYPASS AND IEC LINK
CENTRAL - WAN CHAI BYPASS - NORTH POINT RECLAMATION
PORTION OF SITE
SHEET 1 OF 2
AECOM
DRG.NO. 60095653/NP/1651B
DESIGNED BY TTF
CONTRACT NO. HY/2009/11
CHK'D BY CJH
APPROVED CW
STATUS WORKING DRAWING
SCALE A1 1 : 1000 A3 1 : 2000
METRES
COPYRIGHT RESERVED
Plot File by : ZXRONGCI 2009-10-19
p:\projects\60095653\drawing\NP\1000\NP_651.dgn


VICTORIA HARBOUR
Dredging and Backfilling Work
for
Cross Harbour Watermain
EIA-141/2007
DP6
Dredging and Backfillind Works
for HKCEC
EIA-141/2007
DP3
GLOUCESTER ROAD
N
LOCATION PLAN
SCALE 1 : 50000
NOTES:
1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE NOTED.
2. THE RESTRICTION SHOWN IN THIS DRAWING WILL COME INTO EFFECT AFTER THE OPERATION OF THE GOVERNMENT HELIPAD AT EXPO DRIVE EAST.
LEGEND:
CONTRACT BOUNDARY
MOORING RESTRICTION ZONE
NAVIGATION AND MOORING RESTRICTION ZONE
WORKING BARGE, NAVIGATION AND MOORING RESTRICTION ZONE
TENDER ADDENDUM NO.4
TENDER ADDENDUM NO.1
TENDER DRAWING
CEDD
土木工程拓展署
Civil Engineering and Development Department
WAN CHAI DEVELOPMENT PHASE II
WAN CHAI DEVELOPMENT PHASE II - EXTERNAL WORKS AT HONG KONG CONVENTION AND EXHIBITION CENTRE
RESTRICTED ZONE FOR CONSTRUCTION VESSELS
(Contract no: HK/2009/01)
AECOM
DRG.NO. 60041297/C1/100/10108
AS 1:6000
METRES
© COPYRIGHT RESERVED



CUT LINE B-B
HENNESSY ROAD
JOHNSTON ROAD
INSET 'A'
SCALE 1 : 1000
CENTRAL DISTRICT
VICTORIA HARBOUR
HONG KONG CONVENTION AND EXHIBITION CENTRE
HKCEC (Western Part)
HKCEC (Middle Part)
HKCEC (Eastern Part)
EIA-141/2007
DP3
CONVENTION AVENUE
FENWICK PIER STREET
HARBOUR ROAD
KEY PLAN
NOTE:
1. FOR NOTES & LEGEND, REFER TO DRAWING NO. 60041297/C1/100/1004.
COORDINATES
EASTING
NORTHING
C TENDER ADDENDUM NO.4
B TENDER ADDENDUM NO.2
A TENDER ADDENDUM NO.1
TENDER DRAWING
Civil Engineering and Development Department
WAN CHAI DEVELOPMENT PHASE II
SITE BOUNDARY
SETTING OUT PLAN
(Contract no. Hk/2009/01)
AECOM
60041297/C1/100/1006C
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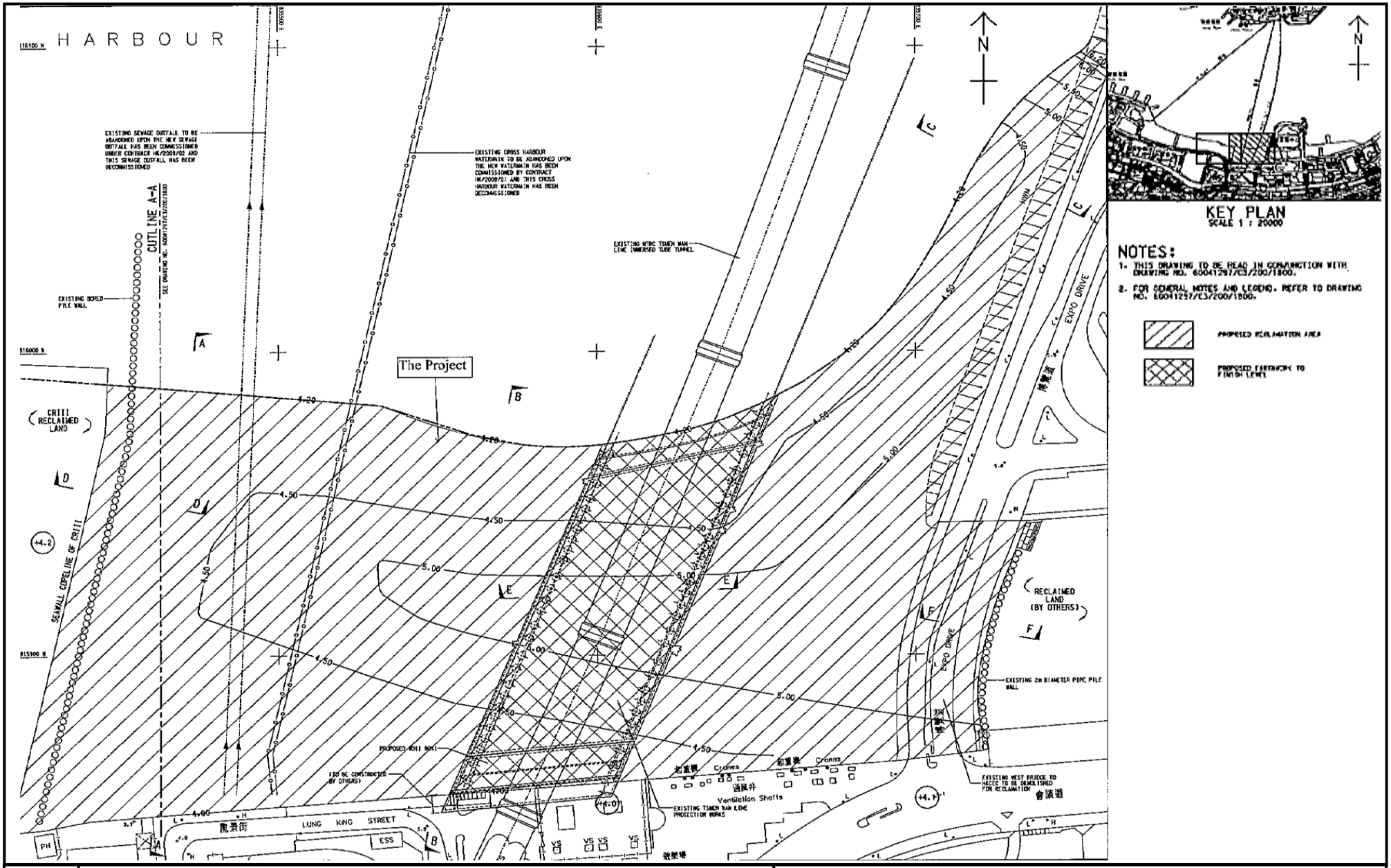
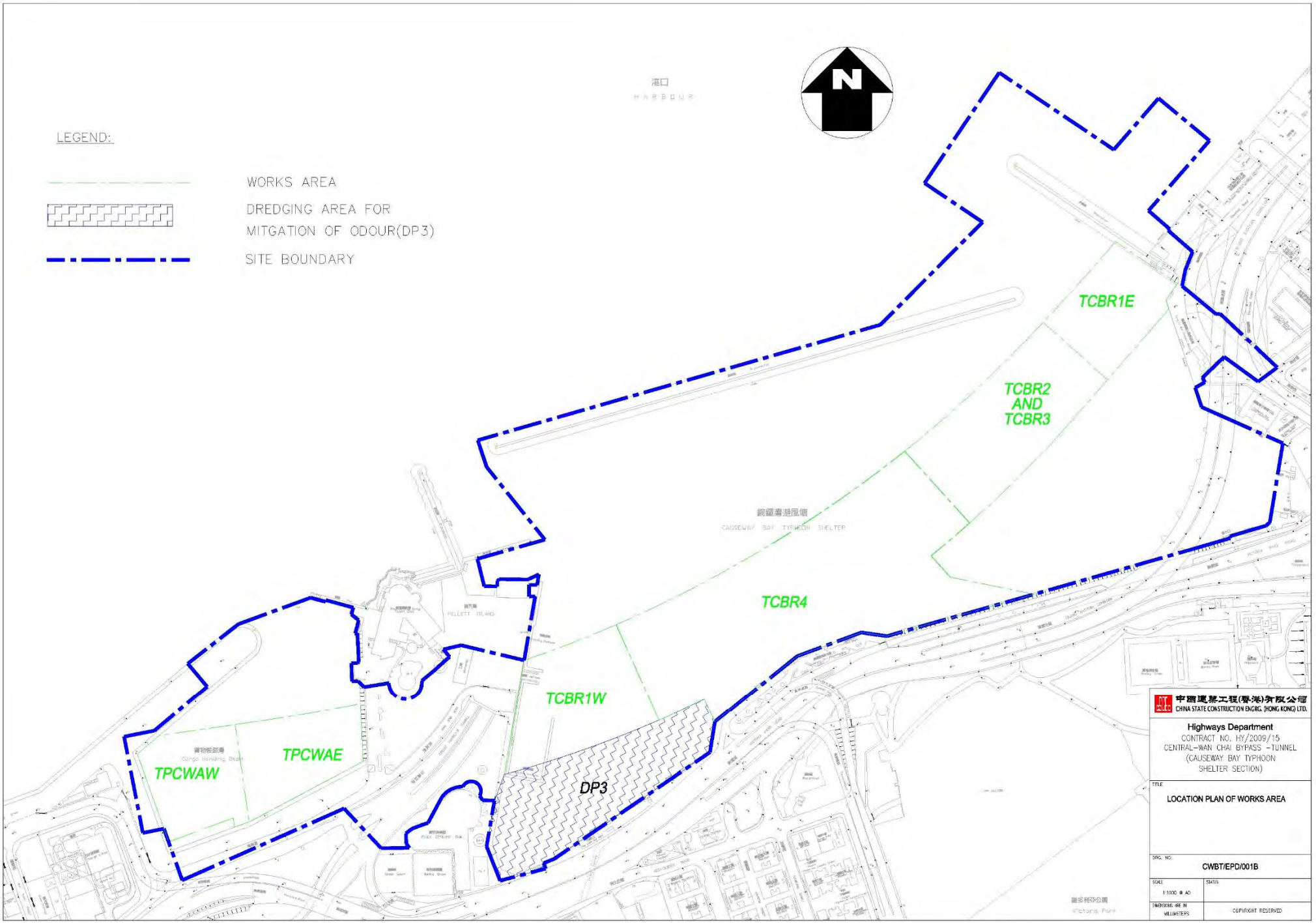


Project Title: Wan Chai Development Phase II – Central Wan Chai Bypass at Wan Chai West (Contract No. HK/2012/08) – Marine Works
工程項目名稱: 灣仔發展計劃第二期 - 中環灣仔繞道-灣仔西段(合約編號:HK/2012/08)-海事工程
Environmental Permit No. : FEP-08/356/2009
環境許可證編號 : FEP-08/356/2009

Figure 1b : General Layout of the Project
圖 1b : 工程項目佈局圖

(This figure was prepared based on Figure 1b of Application for Further Environmental Permit (Application No.: FEP 172/2016))
(本圖是根據申請新的環境許可證 (申請書編號 FEP-172/2016) 圖 1b 編製)


LEGEND:
WORKS AREA
DREDGING AREA FOR MITGATION OF ODOUR(DP3)
SITE BOUNDARY
N
TCBR1E
TCBR2 AND TCBR3
TCBR4
TCBR1W
DP3
TPCWAE
TPCWAW
中國建築工程(香港)有限公司
CHINA STATE CONSTRUCTION ENGRG. (HONG KONG) LTD.
Highways Department
CONTRACT NO. HY/2009/15
CENTRAL-WAN CHAI BYPASS -TUNNEL (CAUSEWAY BAY TYPHOON SHELTER SECTION)
TITLE
LOCATION PLAN OF WORKS AREA
DRG. NO.
CWBT/EPD/001B
SCALE
1:1000 @ A0
STATUS
DIMENSIONS ARE IN MILLIMETERS
COPYRIGHT RESERVED

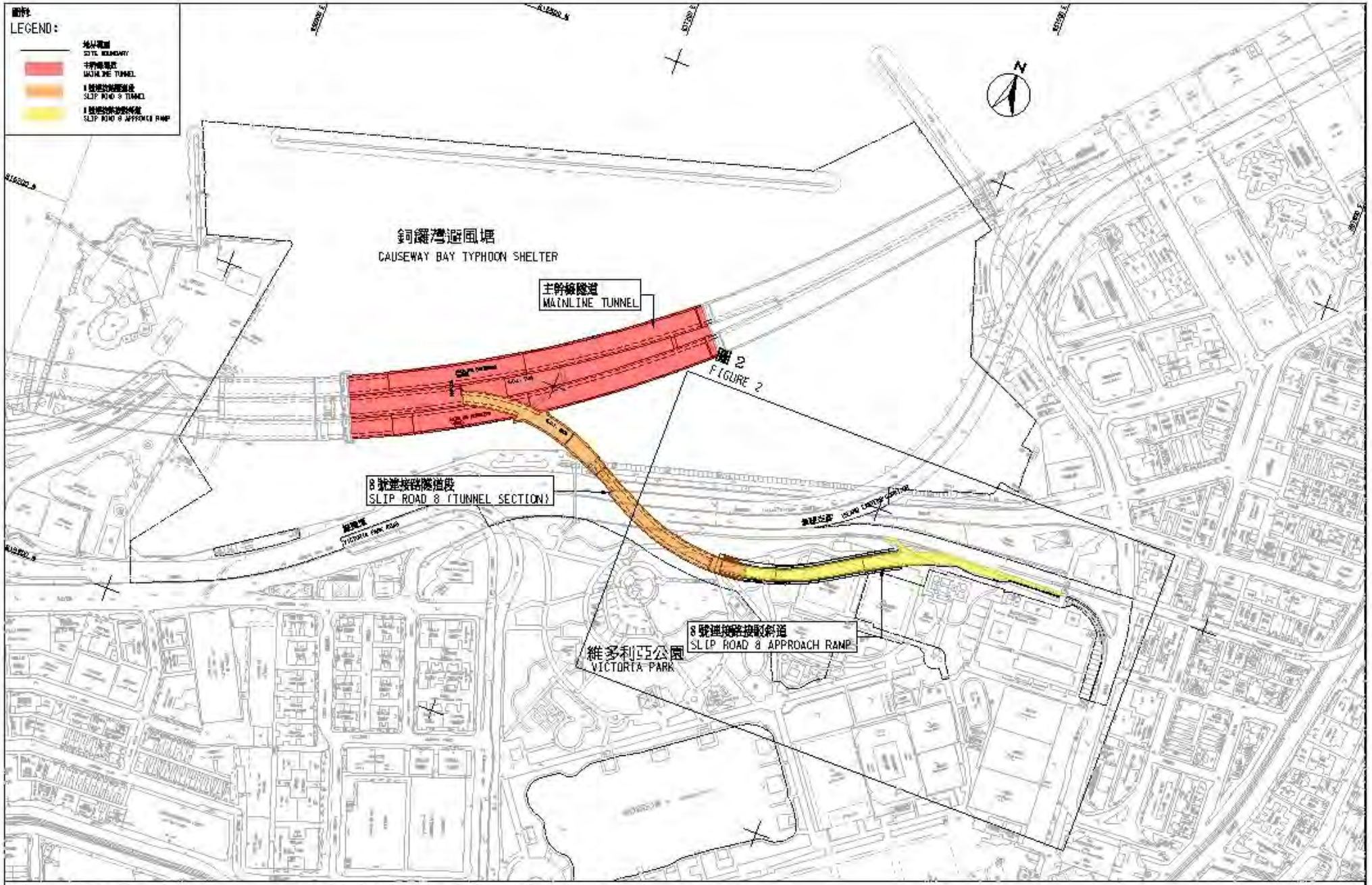


圖1- 合約編號 HY/2010/08中環灣仔繞道-8號連接路段隧道

SCALE 1 : 3000

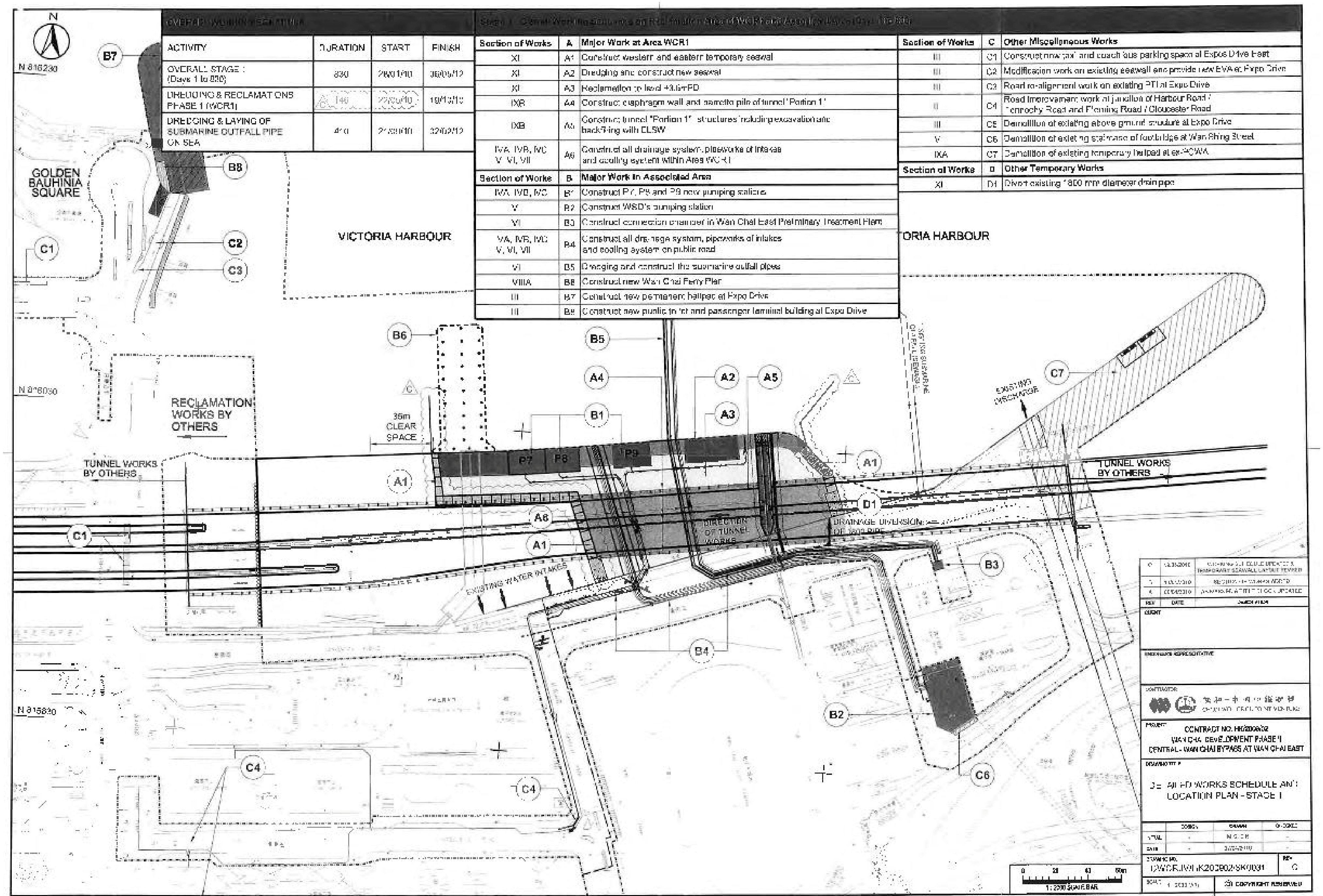
FIGURE 1 - CONTRACT NO. HY/2010/08 - CENTRAL - WAN CHAI BYPASS - TUNNEL (SLIP ROAD 8 SECTION)

T:\HY_2010_08\Misc\ARE\Docs\Figure for Website\T2 Figure 1.dgn 08-Apr-13

ACTIVITY	DURATION	START	FINISH
OVERALL STAGE : (Days 1 to 830)	830	26/01/10	30/05/12
DREDGING & RECLAMATIONS PHASE 1 (WCR1)	146	22/05/10	19/10/10
DREDGING & LAYING OF SUBMARINE OUTFALL PIPE ON SEA	410	21/09/10	02/02/12

Section of Works	A	Major Work at Area WCR1
XI	A1	Construct western and eastern temporary seawall
XI	A2	Dredging and construct new seawall
XI	A3	Reclamation to level +3.5mPD
IXB	A4	Construct diaphragm wall and barrette pile of tunnel "Portion 1"
IXB	A5	Construct tunnel "Portion 1" structures including excavation and backfilling with CLSW
IVA, IVB, IVC V, VI, VII	A6	Construct all drainage system, pipeworks of intakes and cooling system within Area WCR1
Section of Works	**B**	**Major Work in Associated Area**
IVA, IVB, IVC	B1	Construct P7, P8 and P9 new pumping stations
V	B2	Construct WSD's pumping station
VI	B3	Construct connection chamber in Wan Chai East Preliminary Treatment Plant
VA, IVB, IVC V, VI, VII	B4	Construct all drainage system, pipeworks of intakes and cooling system on public road
VI	B5	Dredging and construct the submarine outfall pipes
VIIIA	B6	Construct new Wan Chai Ferry Pier
III	B7	Construct new permanent helipad at Expo Drive
III	B8	Construct new public landing and passenger terminal building at Expo Drive

Section of Works	C	Other Miscellaneous Works
III	C1	Construct new taxi and coach/bus parking space at Expo Drive East
III	C2	Modification work on existing seawall and provide new EVA at Expo Drive
III	C3	Road re-alignment work on existing PTI at Expo Drive
II	C4	Road improvement work at junction of Harbour Road / Fenwick Road and Fleming Road / Gloucester Road
III	C5	Demolition of existing above ground structure at Expo Drive
V	C6	Demolition of existing staircase of footbridge at Wan Shing Street
IXA	C7	Demolition of existing temporary helipad at ex-PCWA
Section of Works	**D**	**Other Temporary Works**
XI	D1	Divert existing 1800 mm diameter drain pipe



REV	DATE	DESCRIPTION
C	12.05.2010	WORKING SCHEDULE UPDATED & TEMPORARY SEAWALL LAYOUT REVISED
B	11.05.2010	REVISION OF COLUMN ADDED
A	07.04.2010	DRAWING REF & TITLE BLOCK UPDATED

CLIENT

ENGINEER'S REPRESENTATIVE

CONTRACTOR
CHINA HARBOUR - ... JOINT VENTURE

PROJECT
CONTRACT NO. HK/2009/02
WAN CHAI DEVELOPMENT PHASE II
CENTRAL - WAN CHAI BYPASS AT WAN CHAI EAST

DRAWING TITLE
DETAILED WORKS SCHEDULE AND LOCATION PLAN - STAGE 1

	DESIGN	DRAWN	CHECKED
INITIAL	-	N.G.C.R	-
DATE	-	07/04/2010	-

DRAWING NO. CWCR/WNK202902/SK0031 REV C
SCALE 1 : 2000 (A3)
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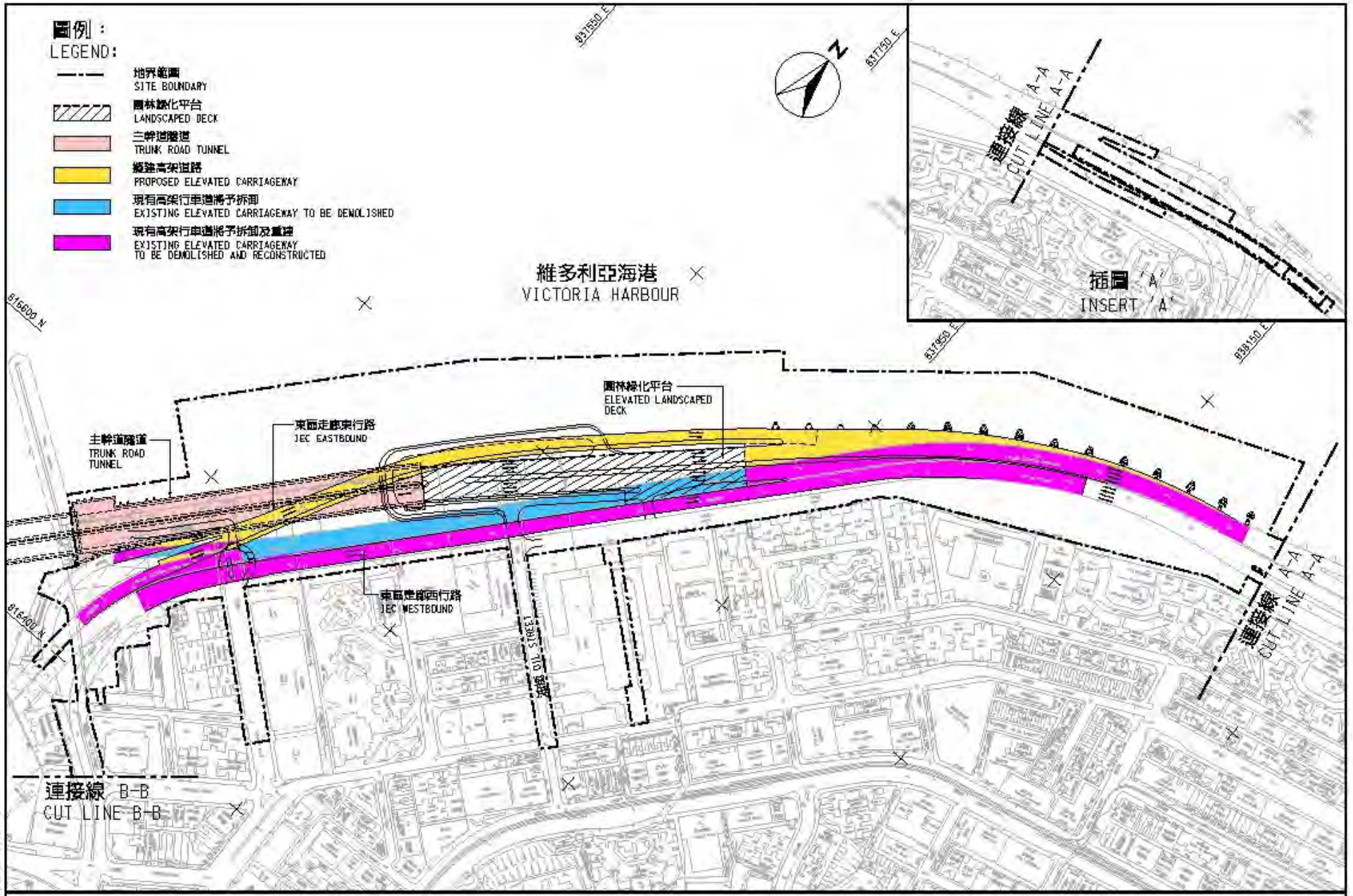

合約編號 HY/2009/19 - 中環灣仔繞道 - 北角段隧道及東區走廊連接路

CONTRACT NO. HY/2009/19 - CENTRAL-WAN CHAI BYPASS - TUNNEL (NORTH POINT SECTION) AND ISLAND EASTERN CORRIDOR LINK

SCALE 1 : 3000

Plotted by: ZUUL_NL 2011-1-12

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Figure 2.2

Project Organization Chart

Project Organization Chart

Project Proponent

Civil Engineering & Development Department

Mr. Lee Hon
Engineer
Tel: 2301 1449
Fax: 2301 1277

Project Proponent

Highways Department

Mr. Tony Cheung
Senior Engineer
Tel: 2762 4951
Fax: 2714 5289

Environmental Protection Department

Mr. Billy Ma
Environmental Protection Officer
Tel: 2835 2390
Fax: 2591 0558

Engineer's Representative for WDII

AECOM

Ms. Gloria Tang
Chief Resident Engineer
Tel: 2587 1778
Fax: 2587 1877

Engineer's Representative for CWB

AECOM

Mr. Dennis Norton / Mr. S. K. Lo
Chief Resident Engineer
Tel: 3912 3188 / 3912 3288
Fax: 3912 3010

Independent Environmental Checker

Ramboll Hong Kong Limited

Mr. David Yeung
Independent Environmental Checker
Tel: 3465 2888
Fax: 3565.2899

HK/2009/01 Contractor

Chun Wo – Leader JV

Mr.Simon Liu
Site Agent
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HK/2009/02 Contractor

Chun Wo – CRGL JV

Mr. Paul Yu
Project Manager
Tel: 3658 3002 Fax: 2827 9996

HK/2012/08 Contractor

China State –Build King Joint Venture

Mr. George Cheung
Site Agent
Tel: 9268 1918 Fax: 2877 1522

HY/2009/15 Contractor

China State Co. Engineering Ltd.

Mr. Partick Ho
Site Agent
Tel: 3557 6405
Fax: 2865 5229

HY/2009/19 Contractor

Chun Wo- CRGL JV

Mr. David Lau
Site Agent
Tel: 3758 8879
Fax: 2570 8013

HY/2010/08 Contractor

China State Construction Engineering (HK) Ltd.

Mr. Thomas Lui
Site Agent
Tel: 3557 6452
Fax: 2566 8061

Environmental Team

Lam Geotechnics Limited

Mr. Raymond Dai
Environmental Team Leader
Tel: 2882 3939 Fax: 2882 3331

Figure 4.1

Locations of Monitoring Stations

Legend

Water Quality Monitoring Stations

RW21-P789 (Wanchai WSD intake/ Great Eagle Centre/ China Resources Centre/ Sun Hung Kai Centre)

C1 Hong Kong Convention and Exhibition Centre Extension

P1 Hong Kong Convention and Exhibition Centre Phase 1

P3 HK Academy For Performing Art

P4 Shui On Centre

P5 Government buildings (Wanchai Tower/ Revenue Tower/ Immigration Tower)

C6 Proposed Exhibition Station/ World Trade Centre

C7 Windsor House

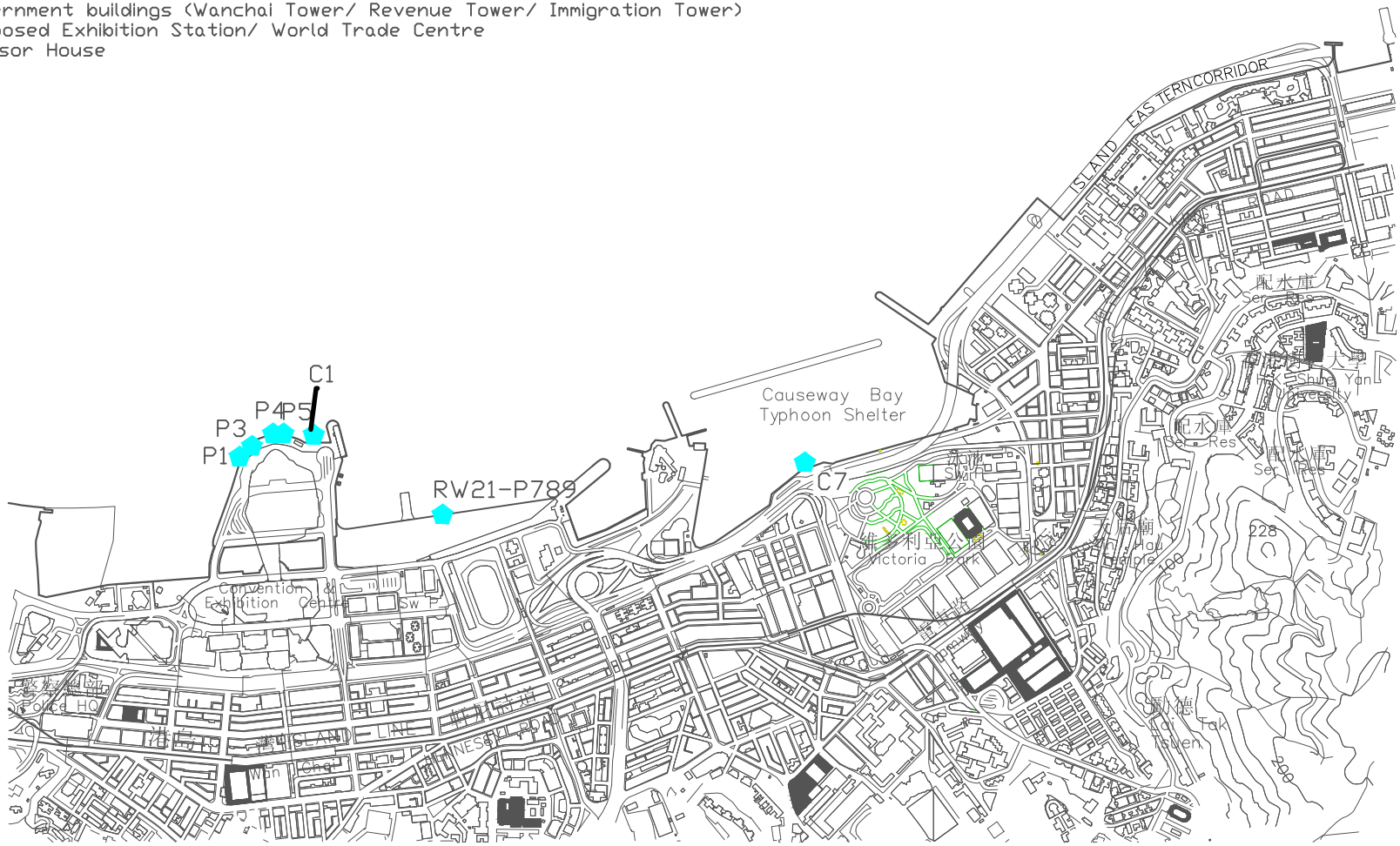


FIGURE	LOCATIONS OF WATER QUALITY MONITORING STATIONS

Legend

Enhance DO Monitoring Stations
Ex-PCWA SE Ex-Public Cargo Wanchai Area SouthEast Station
Ex-PCWA SW Ex-Public Cargo Wanchai Area Southwest Station
C6 Proposed Exhibition Station/ World Trade Centre
C7 Windsor House

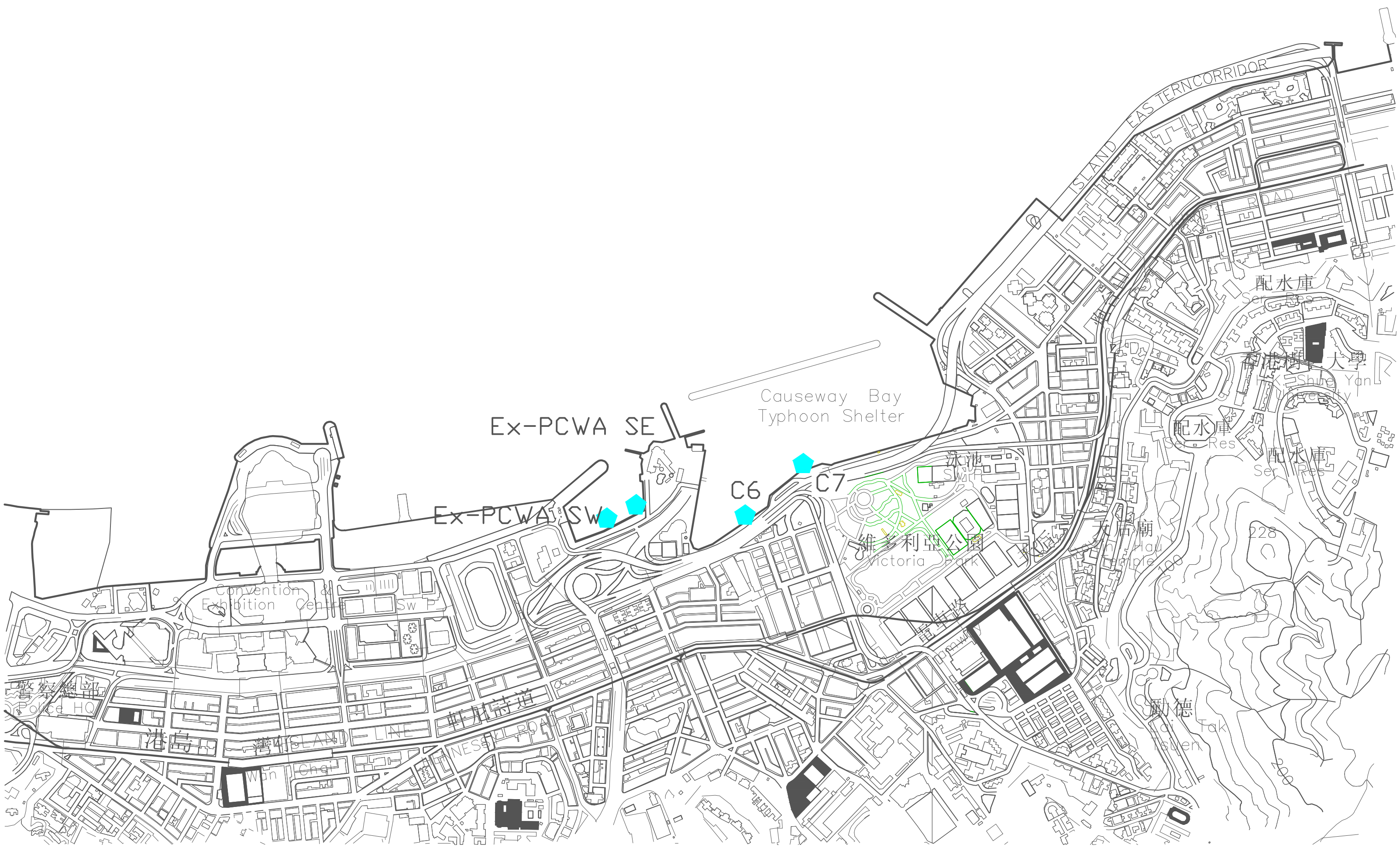


FIGURE **LOCATIONS OF ENHANCE DO MONITORING STATIONS**

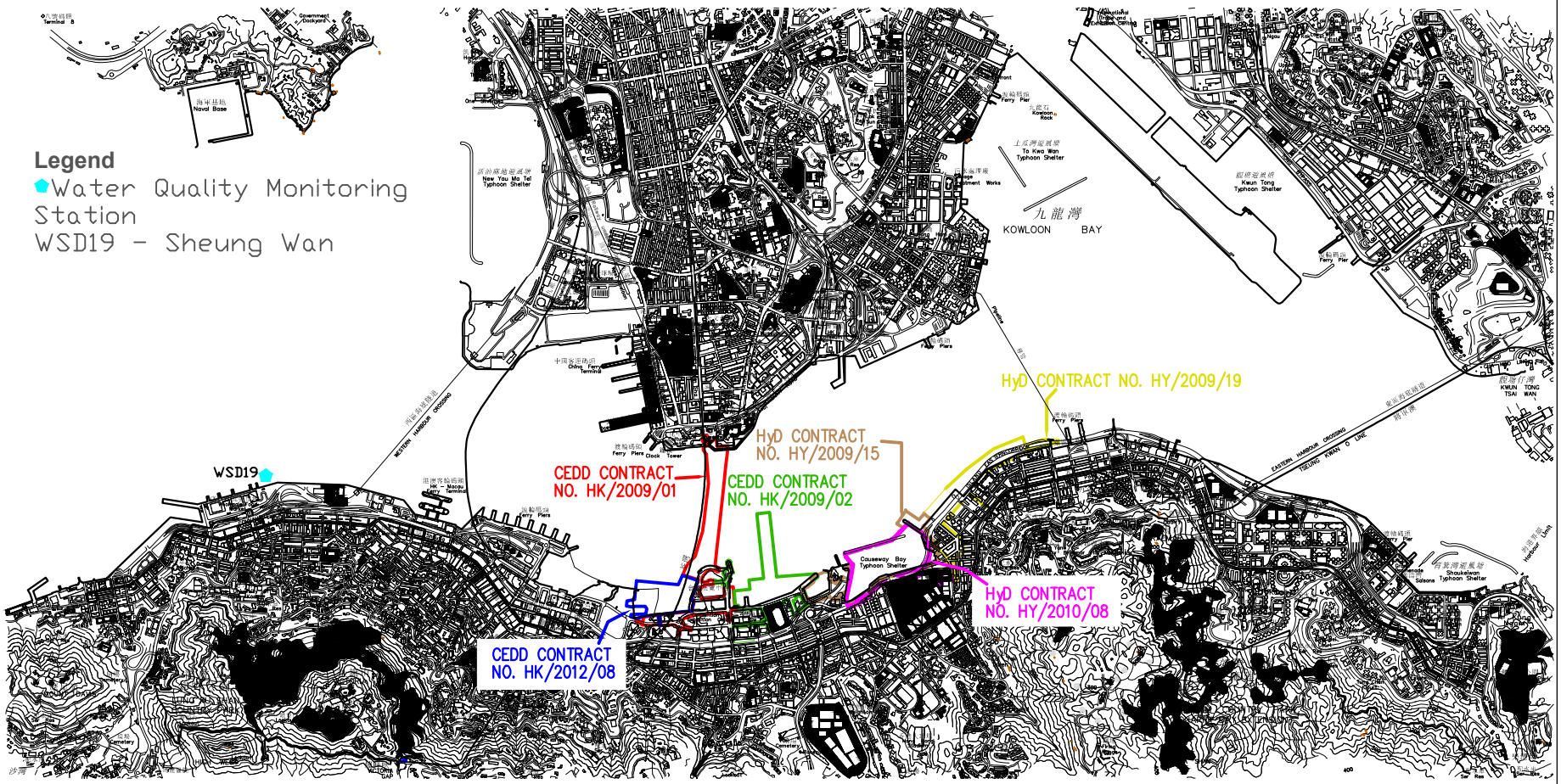
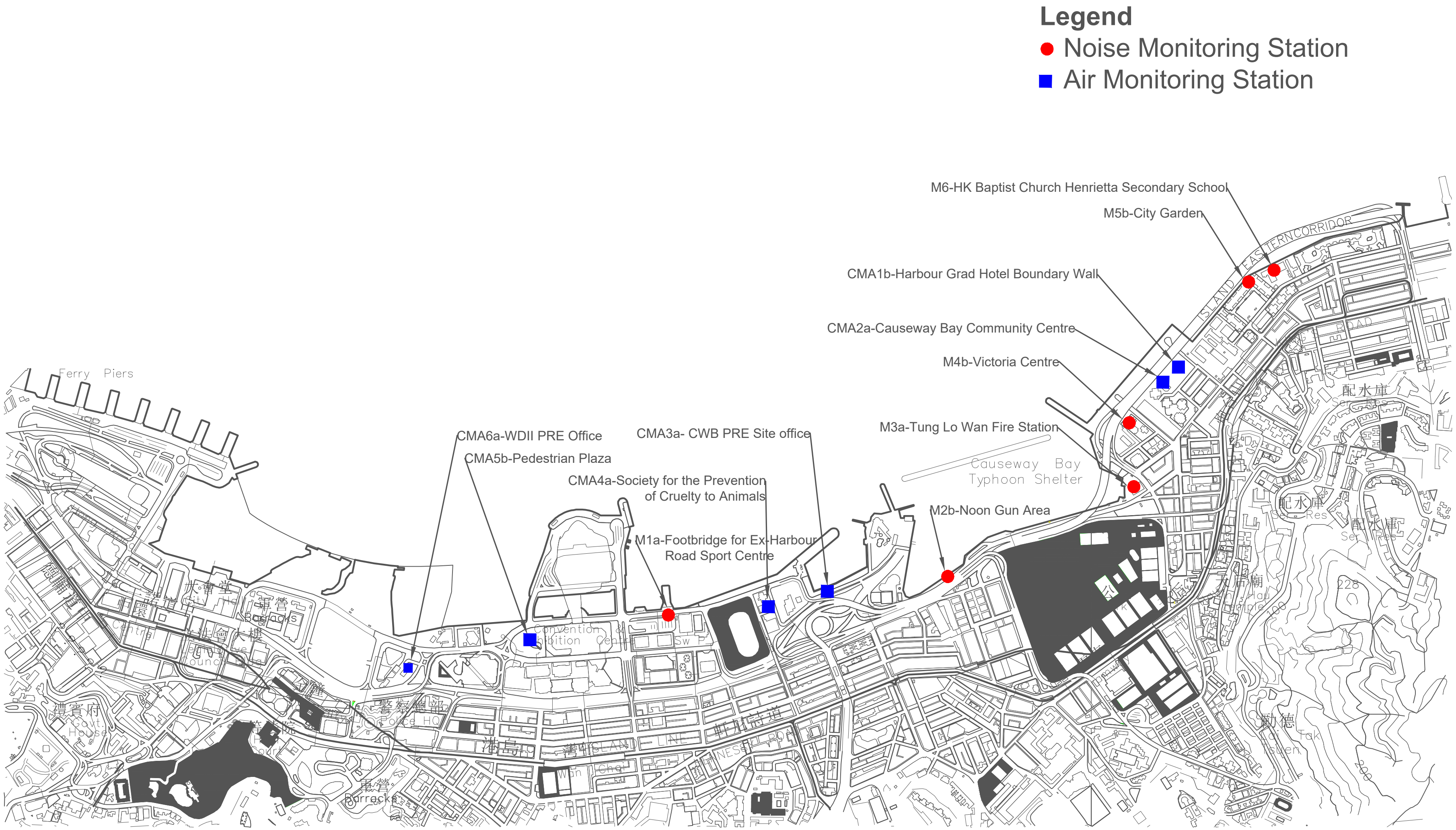


FIGURE	LOCATIONS OF WATER QUALITY MONITORING STATIONS



LOCATIONS OF AIR QUALITY AND NOISE MONITORING STATIONS

Appendix 3.1

Environmental Mitigation Implementation Schedule

Environmental Mitigation Implementation Schedule

Implementation Schedule for Air Quality Control

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
Construction Phase								
For the Whole Project								
S3.6.5	Four times a day watering of the work site with active operations.	Work site / during construction	Contractor		√			EIAO-TM
S3.8.1	Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimise cumulative dust impacts. • Strictly limit the truck speed on site to below 10 km per hour and water spraying to keep the haul roads in wet condition; • Watering during excavation and material handling; • Provision of vehicle wheel and body washing facilities at the exit points of the site, combined with cleaning of public roads where necessary; and • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.	Work site / during construction	Contractor		√			

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S3.5.6	For the dredging activities carried out in the vicinity of Police Officers' Club, the dredging operation will be restricted to only 1 small close grab dredger to minimise the odour impact during the dredging activity. The dredging rate should be reduced as much as practicable for the area in close proximity to the Police Officers' Club. The sediments contain highly contaminated mud which may be disposed with the use of geosynthetic containers (details shall refer to Section 6), grab dredger has to be used for filling up the geosynthetic containers on barges. the dredging rate for the removal of the sediments at the south-west corner of the typhoon shelter shall be slowed down or restricted to specific non-popular hours in weekdays when it is necessary during construction.	Corner of CBTS/implementation of harbour-front enhancement	CEDD[1]		√			EIAO-TM
S3.8.8	Carry out dredging at the corner of CBTS to remove the sediment and clean the slime attached on the CBTS shoreline seawall	Corner of CBTS & CBTS shoreline seawall/implementation of harbour-front enhancement	CEDD[2]		√			EIAO-TM
Operation Phase								
For the Whole Project								

[1] CEDD will identify an implementation agent.

[2] CEDD will identify an implementation agent.

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S3.10.2	Monthly (from July to September) monitoring of odour impacts, for a period of 5 years, is proposed during the operational phase of the Project to ascertain the effectiveness of the Enhancement Package over time, and to monitor any on-going odour impacts at the ASRs.	Planned ASRs (CBTS Breakwater)/First 5-year period of operation phase	CEDD[1]			√		EIAO-TM
For DP1 – CWB (Within the Project Boundary)								
S3.6.53 – S3.6.54	The design parameters of the East and Central Ventilation Buildings as set in Tables 3.10 and 3.11	East and Central Ventilation Buildings / During operation of the Trunk Road	HyD			√		
S3.10.2	Air quality monitoring for the operation performance of the East Ventilation Building and associated East Vent Shaft will be conducted.	East Vent Shaft / During operation of the East Ventilation Building and associated East Vent Shaft	HyD			√		EIAO-TM

- Des - Design, C - Construction, O – Operation, and Dec – Decommissioning

Table A13.2 Implementation Schedule for Noise Control

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
Construction Phase								
For the Whole Project								

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S4.9.4	Good Site Practice: • Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program. • Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program. • Mobile plant, if any, shall be sited as far away from NSRs as possible. • Machines and plant (such as trucks) that may be in intermittent use shall be shut down between works periods or shall be throttled down to a minimum. • Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. • Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities.	Work Sites / During Construction	Contractor		√			EIAO-TM, NCO
For DP1 – CWB (Within the Project Boundary)								

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S4.8.3 – S4.8.5	Use of quiet powered mechanical equipment, movable noise barrier and temporary noise barrier for the following tasks: • Slip road 8 tunnel • Construction of diaphragm wall and substructures of the tunnel approach ramp • Excavation • Construction of slabs • Backfill • Demolition and construction of substructures for the IEC • Demolition works of existing piers and crossheads of the marine section of the existing IEC Use of PME grouping for the following tasks: • At-grade road construction • Substructure for IECL connection	Work Sites / During Construction	Contractor		√			EIAO-TM, NCO
For DP2 – WDII Major Roads (Road P2)								
S4.8.3 – S4.8.4	Use of quiet powered mechanical equipment, movable noise barrier and temporary noise barrier for the following tasks: • Temporary road diversion • Resurfacing • At-grade roadwork	Work Sites / During Construction	Contractor		√			EIAO-TM, NCO
For DP3 – Reclamation Works								
S4.8.3 – S4.8.4	Use of quiet powered mechanical equipment for the following task: • Filling behind seawall • Seawall construction	Work Sites / During Construction	Contractor		√			EIAO-TM, NCO

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
For DP5 – Wan Chai East Sewage Outfall								
S4.8.3 – S4.8.4	Use of quiet powered mechanical equipment for the following tasks: • Submarine pipelines (marine section) Use of quiet powered mechanical equipment and movable noise barrier for the following tasks: • Installation of a new pipeline (land section)	Work Sites / During Construction	Contractor		√			EIAO-TM, NCO
For DP6 – Cross-Harbour Water Mains from Wan Chai to Tsim Sha Tsui								
S4.8.3 – S4.8.4	Use of quiet powered mechanical equipment for the following tasks: • Submarine pipelines (marine section) •	Work Sites / During Construction	Contractor		√			EIAO-TM, NCO

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
Operation Phase								
For DP1 – CWB (Within the Project Boundary)								

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S4.8.14 – S4.8.18	• For Existing NSRs • about 235m length of noise semi-enclosure with transparent panel covering the westbound slip road from the IEC • about 230m length of noise semi-enclosure with transparent panel covering the main carriageways (eastbound and westbound) of the CWB and IEC • about 135m length of 5.5m high cantilevered noise barrier with 3m cantilever inclined at 45° with transparent panel on the eastbound slip road to the IEC • about 95m length of 5.5m high cantilevered noise barrier with 1m cantilever inclined at 45° with transparent panel on the eastbound slip road to the IEC • about 350m length of 3.5m high vertical noise barrier with transparent panel on the eastbound slip road to the IEC • low noise road surfacing for the trunk road (except tunnel section and beneath the landscaped deck at the eastern portal area) with speed limit of 70 km/hour	Near North Point / Before commencement of operation of road project	HyD	√	√	√		EIAO-TM
	For Future/Planned NSRs • about 265m length of noise semi-enclosure with transparent panel covering the westbound slip road from the IEC	In between the Electric Centre (next to City Garden) and CDA(1) site / Before occupation of Planned NSRs in CDA and CDA(1) sites.	HyD	√	√ #			

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	• The openable windows of the temple, if any, should be orientated so as to avoid direct line of sight to the existing Victoria Park Road as far as practicable.	Near Causeway Bay Fire Station / During detailed design of the re-provisioned Tin Hau Temple	Project Proponent for the re-provisioned Tin Hau Temple	√				

* Des - Design, C - Construction, O – Operation, and Dec - Decommissioning

Only the steel frame for this section of noise semi-enclosure would be erected in advance during the construction of the westbound slip road.

Table A13.3 Implementation Schedule for Water Quality Control

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
Construction Phase								
For DP3 – Reclamation Works, DP5 (Wan Chai East Sewage Outfall), DP6 (Cross-Harbour Water Mains from Wan Chai to Tsim Sha Tsui), DP1 – CWB (within the Project Boundary)								
S5.8	A phased reclamation approach is planned for the WDII. Containment of fill within each of the reclamation phases by seawalls is proposed, with the seawall constructed first (above high water mark) with filling carried out behind the completed seawalls. Any gaps that may need to be provided for marine access will be shielded by silt curtains to control sediment plume dispersion away from the site. Filling for seawall construction should be carried out behind the silt curtain	Work site / During the construction period	Contractor		√			EIAO-TM, WPCO
S5.8	Dredging shall be carried out by closed grab dredger for the following works: • Seawall construction in all the reclamation areas; • Construction of the CWB Tunnel • Construction of the proposed WSD water mains; and • Construction of the proposed Wan Chai East sewage outfall pipelines.	Work site / During the construction period	Contractor		√			EIAO-TM, WPCO
S5.8, Figure 5.3	Dredging for the Wan Chai East sewage outfall pipelines shall not be carried out concurrently with the following activities: • Dredging along the proposed cross-harbour water mains; • Dredging along the seawall in the Wan Chai Reclamation (WCR) zone (area between HKCEC Extension and PCWA).	Work site / During the construction period	Contractor		√			EIAO-TM, WPCO

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S5.8	The water body behind the temporary reclamations within the Causeway Bay typhoon shelter shall not be fully enclosed.	Work site / During the construction period	Contractor		√			EIAO-TM, WPCO
S5.8	As a mitigation measure, to avoid the accumulation of water borne pollutants within the temporary embayment between CRIII and HKCEC1, an impermeable barrier, suspended from a floating boom on the water surface and extending down to the seabed, will be erected by the contractor before the HKCEC1 commences. The barrier will channel the stormwater discharge flows from Culvert L to the outside of the embayment. The contractor will maintain this barrier until the reclamation works in HKCEC2W are carried out and the new Culvert L extension is constructed.	Work site / During the construction period	Contractor		√			EIAO-TM, WPCO
S5.8, Figure 5.3	The total dredging rates in each of the marine works zones shall not be more than the maximum production rates stated in the table below. These are the production rates without considering the effect of silt curtain.	Work site / During the construction period	Contractor		√			EIAO-TM, WPCO

Reclamation Area		Maximum Dredging Rate		Maximum Dredging Rate (m^3 per week)
		m^3 per day	m^3 per hour (for 16 hrs per day)	
Dredging along seawall or breakwater				
North Point Shoreline Zone (NPR)		6,000	375	42,000
Causeway Bay Shoreline Zone	TBW	1,500	94	10,500
	TCBR	6,000	375	42,000
PCWA Zone		5,000	313	35,000

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<table><tr><td colspan="2">Wan Chai Shoreline Zone (WCR)</td><td>6,000</td><td>375</td><td>42,000</td></tr><tr><td rowspan="2">HKCEC Shoreline Zone (HKCEC)</td><td>HKCEC Stage 1 & 3</td><td>1,500</td><td>94</td><td>10,500</td></tr><tr><td>HKCEC Stage 2</td><td>6,000</td><td>375</td><td>42,000</td></tr><tr><td colspan="2">Cross Harbour Water Mains</td><td>1,500</td><td>94</td><td>10,500</td></tr><tr><td colspan="2">Wan Chai East Submarine Sewage Pipeline</td><td>1,500</td><td>94</td><td>10,500</td></tr></table> Note: 1,500 m^3 per day shall be applied for construction of the western seawall of WCR1.							
S5.8, Figure 5.3	Dredging along the seawall at WCR1 shall be undertaken initially at 1,500m^3 per day for construction of the western seawall (which is in close proximity of the WSD intake), followed by partial seawall construction at the western seawall (above high water mark) to protect the adjacent intakes as much as possible from further dredging activities.	Work site / During the construction period	Contractor		√			EIAO-TM, WPCO
S5.8, Figure 5.3	For dredging within the Causeway Bay typhoon shelter, seawall shall be partially constructed to protect the nearby seawater intakes from further dredging activities. For example, at TCBR1W, the southern and eastern seawalls shall be constructed first (above high water mark) so that the seawater intakes at the inner water would be protected from the impacts from the remaining dredging activities along the northern boundary.	Work site / During the construction period	Contractor		√			EIAO-TM, WPCO
S5.8, Figure 5.3	Silt curtains shall be deployed around the closed grab dredgers during seawall dredging and seawall trench filling in the areas of HKCEC, WCR, TCBR and NP.	Work site / During the construction period	Contractor		√			EIAO-TM, WPCO
S5.8, Figure 5.3	Silt screens shall be applied to seawater intakes at interim construction stages as stated below: <table><tr><th>Interim Construction Stage</th><th>Location of Applications</th></tr><tr><td>**Scenario 2A** in early 2009 with concurrent dredging activities at HKCEC, WCR, TPCWA, TBW, NP and Water Mains Zone</td><td>**WSD saltwater intakes** at Sai Wan Ho, Quarry Bay, Sheung Wan, Wan Chai, Kowloon South **Cooling water intakes** for Hong Kong Convention and Exhibition Centre Extension, Hong Kong Convention and Exhibition Centre Phase I, Telecom House / HK Academy for Performing Arts / Shun On Centre, Wan Chai Tower / Revenue Tower / Immigration Tower and Sun Hung Kai Centre</td></tr><tr><td>**Scenario 2B** in late 2009/2010 with concurrent dredging activities at Sewage Pipelines Zone and TCBR.</td><td>**WSD saltwater intakes** at Sheung Wan, Wan Chai **Cooling water intakes** for Queensway Government Offices, Excelsior Hotel, World Trade Centre and Windsor House.</td></tr><tr><td>**Scenario 2C** in 2011 with concurrent dredging activities at HKCEC and TCBR.</td><td>**WSD saltwater intakes** at Sheung Wan and Reprovisioned WSD Wan Chai saltwater intake. **Cooling water intakes** for MTR South, Excelsior Hotel & World Trade Centre and reprovisioned Windsor House.</td></tr></table>	Work site / During the construction period	Contractor		√			EIAO-TM, WPCO

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S5.8	Other mitigation measures include: • mechanical grabs, if used, shall be designed and maintained to avoid spillage and sealed tightly while being lifted. For dredging of any contaminated mud, closed watertight grabs must be used; • all vessels shall be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; • all hopper barges and dredgers shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material; • construction activities shall not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site or dumping grounds; • loading of barges and hoppers shall be controlled to prevent splashing of dredged material into the surrounding water. Barges or hoppers shall not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation; and	Work site / During the construction period	Contractor		√			ProPECC PN 1/94; WPCO (TM-DSS)

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	• before commencement of the reclamation works, the holder of Environmental Permit has to submit plans showing the phased construction of the reclamation, design and operation of the silt curtain.							
S5.8	Silt screens are recommended to be deployed at the seawater intakes during the reclamation works period. Installation of silt screens at the seawater intake points may cause a potential for accumulation and trapping of pollutants, floating debris and refuse behind the silt screens and may lead to potential water quality deterioration at the seawater intake points. Major sources of pollutants and floating refuse include the runoff and storm water discharges from the nearby coastal areas. As a mitigation measure to avoid the pollutant and refuse entrapment problems and to ensure that the impact monitoring results are representative, regular maintenance of the silt screens and refuse collection shall be performed at the monitoring stations at regular intervals on a daily basis. The Contractor shall be responsible for keeping the water behind the silt screen free from floating rubbish and debris during the impact monitoring period.	Work site / During the construction period	Contractor		√			EIAO-TM, WPCO

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S5.8	Dredging of contaminated mud is recommended as a mitigation measures for control of operational odour impact from the Causeway Bay typhoon shelter. In recognition of the potential impacts caused by dredging activities close to the seawater intakes, only 1 small close grab dredger shall be operated within the typhoon shelter (for the dredging to mitigate odour impact) at any time to minimize the potential impact. Double silt curtains shall be deployed to fully enclose the closed grab dredger during the dredging operation. In addition, an impermeable barrier, suspended from a floating boom on the water surface and extended down to the seabed, shall be erected to isolate the adjacent intakes as much as possible from dredging activities. For example, if dredging is to be carried out at the southwest corner of the typhoon shelter, physical barriers shall be erected to west of the cooling water intake for Excelsior Hotel so that the intake would be shielded from most of the SS generated from the dredging operation to the west of the intake. For area in close proximity of the cooling water intake point, the dredging rate shall be reduced as much as practicable. Site audit and water quality monitoring shall be carried out at the seawater intakes during the dredging operations. Daily monitoring of SS at the cooling water intake shall be carried out, and 24 hour monitoring of turbidity at the intakes shall be implemented during the dredging activities. If the monitoring results indicate that the dredging operation has caused significant changes in water quality conditions at the seawater intakes, appropriate actions shall be taken to stop the dredging and mitigation measures such as slowing down the dredging rate shall be implemented.	Causeway Bay typhoon shelter/Implementation of harbour-front enhancement.	CEDD[3]		√			WPCO

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
For the Whole Project								
S5.8	• Construction Runoff and Drainage • use of sediment traps, wheel washing facilities for vehicles leaving the site, and adequate maintenance of drainage systems to prevent flooding and overflow; • Permanent drainage channels shall incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities shall be based on the guidelines in Appendix A1 of ProPECC PN 1/94; • a sediment tank constructed from pre-formed individual cells of approximately 6 - 8 m3 capacity can be used for settling ground water prior to disposal; • oil interceptors shall be provided in the drainage system for the tunnels and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor shall have a bypass to prevent flushing during periods of heavy rain; • precautions and actions to be taken when a rainstorm is imminent or forecast, and during or after rainstorms. Particular attention shall be paid to the control of any silty surface runoff during storm events; • on-site drainage system shall be installed prior to the commencement of other construction activities. Sediment traps shall be installed in order to minimise the sediment loading of the effluent prior to discharge; • All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge shall be adequately designed for the controlled release of storm flows. All sediment control measures shall be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage shall be reinstated to its original condition when the construction work is finished or the temporary diversion is no longer	• Work site / During the constructi on period	Contractor		√			ProPECC PN 1/94; WPCO (TM-DSS)

[3] CEDD will identify an implementation agent.

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	required. • All fuel tanks and store areas shall be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity.							
	• Minimum distances of 100 m shall be maintained between the storm water discharges and the existing or planned WSD flushing water intakes during construction phase.							
S5.8	*Sewage from Construction Work Force* Construction work force sewage discharges on site shall be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage shall be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor shall also be responsible for waste disposal and maintenance practices.	Work site / During the construction period	Contractor		√			ProPECC PN 1/94; WPCO (TM-DSS)
S5.8	*Floating Debris and Refuse* Collection and removal of floating refuse shall be performed at regular intervals on a daily basis. The contractor shall be responsible for keeping the water within the site boundary and the neighbouring water free from rubbish.	Work site and adjacent water / During the construction period.	Contractor		√			WPCO

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S5.8	*Storm Water Discharges* Minimum distances of 100 m shall be maintained between the existing or planned stormwater discharges and the existing or planned WSD flushing water intakes.	Work site and adjacent water / During the design and construction period.	Contractor	√	√			WPCO
Operation Phase								
DP1 – CWB (within the Project Boundary)								
S5.8	For the operation of CWB, a surface water drainage system would be provided to collect road runoff. The following operation stage mitigation measures are recommended to ensure road runoff would comply with the TM under the WPCO: • The drainage from tunnel sections shall be directed through petrol interceptors to remove oil and grease before being discharged to the nearby foul water manholes. • Petrol interceptors shall be regularly cleaned and maintained in good working condition. • Oily contents of the petrol interceptors shall be properly handled and disposed of, in compliance with the requirements of the Waste Disposal Ordinance. • Sewage arising from ancillary facilities of CWB (for examples, car park,	CWB/During design and operational period	HyD/TD[3]	√		√		WPCO

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	control room, ventilation and administration buildings and tunnel portals) shall be connected to public sewerage system. Sufficient capacity in public sewerage shall be made available to the proposed facilities. • Road drainage shall also be provided with adequately designed silt trap to minimize discharge of silty runoff. • The design of the operational stage mitigation measures for CWB shall take into account the guidelines published in ProPECC PN 5/93 "Drainage Plans subject to Comment by the EPD." All operational discharges from the CWB into drainage or sewerage systems are required to be licensed by EPD under the WPCO.							

* Des - Design, C - Construction, O – Operation, and Dec - Decommissioning

[3] if employ Management, Operation and Maintenance (MOM) Contract

Table A13.4 Implementation Schedule for Waste Management

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
Construction Phase								
For DP3 – Reclamation Works								
S6.7.2	***Marine Sediments*** The dredged marine sediments would be loaded onto barges, transported to and disposed of at the designated disposal sites at South of Cheung Chau, East of Ninepin, East of Tung Lung Chau, South of Tsing Yi or East of Sha Chau to be allocated by the MFC depending on their level of contamination or at other disposal sites after consultation with the MFC and EPD. In accordance with the ETWB TCW No. 34/2002, the contaminated material must be dredged and transported with great care. The mitigation measures recommended in Section 5 of the EIA Report shall be incorporated. The dredged contaminated sediment must be effectively isolated from the environment upon final disposal and shall be disposed of at the Type 2 confined marine disposal contaminated mud pit.	Work site / During the construction period	Contractor		√			ETWB TCW No. 34/2002
S6.7.3	Based on the biological screening results, the Category H (>10xLCEL) sediment which failed the biological testing would require Type 3 special disposal. The volume of Category H sediment from the Causeway Bay typhoon shelter which would require special disposal arrangements is estimated to be approximately 0.05 Mm^3. A feasible containment method is proposed whereby the dredged sediments are sealed in geosynthetic containers and, at the disposal site, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal.							

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S6.7.5	It will be the responsibility of the Contractor to satisfy the appropriate authorities that the contamination levels of the marine sediment to be dredged have been analysed and recorded. According to the ETWB TCW No. 34/2002, this will involve the submission of a formal Sediment Quality Report to the DEP, at least 3 months prior to the dredging contract being tendered							
S6.7.6	During transportation and disposal of the dredged marine sediments requiring Type 1 and Type 2 disposal, the following measures shall be taken to minimise potential impacts on water quality: • Bottom opening of barges shall be fitted with tight fitting seals to prevent leakage of material. Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved.							

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	• Monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP. • Barges or hopper barges shall not be filled to a level that would cause the overflow of materials or sediment laden water during loading or transportation.							
S6.6.12	***Floating Refuse*** During the construction phase, the project proponent's contractor will be responsible for the collection of any refuse within their works area. Floating booms will be provided on the water surface to confine the refuse from the working barges as well as to avoid the accumulation of pollutants within temporary embayment as mentioned in Table 13.3.	Work site / During the construction period	Contractor		√			
For the Whole Project								

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S6.7.7	*Good Site Practices* Recommendations for good site practices during the construction activities include: • nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site; • training of site personnel in proper waste management and chemical waste handling procedures; • provision of sufficient waste disposal points and regular collection for disposal; • appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; • regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and • a recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).	Work site / During the construction period	Contractor		√			Waste Disposal Ordinance (Cap.354)

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S6.7.8	*Waste Reduction Measures* Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include: • segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; • to encourage collection of aluminium cans, PET bottles and paper, separate labelled bins shall be provided to segregate these wastes from other general refuse generated by the work force; • any unused chemicals or those with remaining functional capacity shall be recycled; • use of reusable non-timber formwork, such as in casting the tunnel box sections, to reduce the amount of C&D material. • prior to disposal of C&D waste, it is recommended that wood, steel and other metals shall be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill; • proper storage and site practices to minimise the potential for damage or contamination of construction materials; and • plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.	Work site / During planning and design stage, and construction stage	Contractor	√	√			

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S6.7.10	*General Refuse* General refuse shall be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D material. A collection area shall be provided where wastes can be stored and loaded prior to removal from site. An enclosed and covered area is recommended to reduce the occurrence of 'wind blow' light material.	Work site / During the construction period	Contractor		√			Public Health and Municipal Services Ordinance (Cap. 132)
S6.7.11	*Chemical Wastes* After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) shall be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals shall be collected by a licensed collector for disposal at the CWTF or other licensed facility in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	Work site / During the construction period	Contractor		√			Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes
S6.7.12	*Construction and Demolition Material* C&D material shall be sorted on-site into inert C&D material (that is, public fill) and C&D waste. All the suitable inert C&D material shall be broken down to 250 mm in size for reuse as public fill in the WDII reclamation. C&D waste, such as wood, glass, plastic, steel and other metals shall be reused or recycled and, as a last resort, disposed of to landfill. A suitable area shall be designated to facilitate the sorting process and a temporary stockpiling area will be required for the separated materials.	Work site / During the construction period	Contractor		√			ETWB TCW No. 33/2002, 31/2004, 19/2005

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S6.7.13	In order to monitor the disposal of public fill and C&D waste at public filling facilities and landfills, respectively, and to control fly tipping, a trip-ticket system shall be included as one of the contractual requirements and implemented by the Environmental Team undertaking the environmental monitoring and audit work. An Independent Environment Checker shall be responsible for auditing the results of the system.	Work site / During the construction period	Contractor and Independent Environmental Checker		√			ETWB TCW No. 31/2004
S6.7.14	*Bentonite Slurry* The disposal of residual used bentonite slurry shall follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage" and listed as follows: • If the disposal of a certain residual quantity cannot be avoided, the used slurry may be disposed of at the marine spoil grounds subject to obtaining a marine dumping licence from EPD on a case-by-case basis. • If the used bentonite slurry is intended to be disposed of through the public drainage system, it shall be treated to the respective effluent standards applicable to foul sewers, storm drains or the receiving waters as set out in the Technical Memorandum of Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters. • If the used bentonite slurry is intended to be disposed to public fill reception facilities, it will be mixed with dry soil on site before disposal.	Work site / During the construction period	Contractor		√			ProPECC PN 1/94

* Des - Design, C - Construction, O – Operation, and Dec - Decommissioning

Table A13.5 Implementation Schedule for Land Contamination

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
Construction Phase								
For the Whole Project								
S.12.6	• The contaminated site shall be cleaned up before commencement of site clearance and construction work at the concerned area which may disturb the ground.	A King Marine / Before commencement of construction activities at A King Marine.	Project proponent for the re-provisioned Tin Hau Temple	√				*"Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boatyards, and Car Repair/Dismantling Workshops"* published by EPD, HKSAR EPD ProPECC Note No. 3/94
S7.10	During soil remediation works, the Contractor for the excavation works shall take note of the following points for excavation: • Excavation profiles must be properly designed and executed; • In case the soil to be excavated is situated beneath the groundwater table, it may be necessary to lower the groundwater table by installing well points or similar means; • Quantities of soil to be excavated must be estimated; • It maybe necessary to split quantities of soil according to soil type, degree and nature of contamination. • Temporary storage of soil at intermediate depot or on-site	A King Marine / During soil remediation works	Contractor	√				Air Pollution Control Ordinance Noise Control Ordinance Waste Disposal Ordinance Waste Disposal (Chemical Waste) (General) Regulation

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	maybe required. The storage site shall include protection facilities for leaching into the ground. eg. Liner maybe required.							
	• Supply of suitable clean backfill materials is needed after excavation. • Care must be taken of existing buildings and utilities. • Precautions must be taken to control of ground settlement • Speed controls for vehicles shall be imposed on dusty site areas. • Vehicle wheel and body washing facilities at the site's exit points shall be established and used. The following environmental mitigation measures shall be strictly followed during the operation and/or maintenance of the CS/S facilities:							Water Pollution Control Ordinance

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	Air Quality Mitigation Measures • The loading, unloading, handling, transfer or storage of cement shall be carried out in an enclosed system. • The loading, unloading, handling, transfer or storage of other materials which may generate airborne dust emissions such as untreated soil and oversize materials sorted out from the screening plant and stabilized soil stockpiled in the designated handling area, shall be carried out in such a manner to prevent or minimise dust emissions. These materials shall be adequately wetted prior to and during the loading, unloading and handling operations. • All practicable measures, including speed controls for vehicles, shall be taken to prevent or minimize the dust emission caused by vehicle movement. • Tarpaulin or low permeable sheet shall be put on dusty vehicle loads transported between site locations.							
	Noise Mitigation Measures • The mixing facilities shall be sited as far as practicable to the nearby noise sensitive receivers. • Simultaneous operation of mixing facilities and other equipment shall be avoided. • Mixing process and other associated material handling activities shall be properly scheduled to minimise potential cumulative noise impact on the nearby noise sensitive receivers. • Construction Noise Permit shall be applied for the operation of powered mechanical equipment during restricted hours (if any).							

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	Water Quality Mitigation Measures • Stockpile of untreated soil shall be covered as far as practicable to prevent the contaminated material from leaching out. The leachate shall be discharged following the requirements of WPCO. *Waste Mitigation Measures* • Treated oversize materials will be used as filling material for backfilling within the site. Sorted materials of size smaller than 5 cm will be collected and transferred to the mixing plant for further decontamination treatment. • Stabilized soils shall be broken into suitable size for backfilling or reuse on site. • A high standard of housekeeping shall be maintained within the mixing plant area. • If necessary, there shall be clear and separated areas for stockpiling of untreated and treated materials.							

* Des - Design, C - Construction, O – Operation, and Dec - Decommissioning

Table A13.6 Implementation Schedule for Marine Ecology

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
Construction Phase								
For the Whole Project - Schedule 3 DP								
S.9.7.2	Alternative design of the Trunk Road constructed in tunnel shall be adopted to avoid permanent reclamation in CBTS and ex-PWCA Basin.	-	CEDD/HyD	√				EIAO TM Annex 16 (Section 8.4) & EIAO Guidance Note No. 3/2002.
For DP3 – Reclamation Works								
S.9.7.3	Translocation of those potentially affected coral colonies to the nearby suitable habitats such as Junk Bay is recommended. A detailed translocation plan (including translocation methodology, monitoring of transplanted corals, etc.) should be drafted and approval by AFCD during the detailed design stage of the Project.	Ex-PCWA Basin and along seawall next to a public pier which is about 250 m away from the CBTS	CEDD/HyD	√				EIAO TM Annex 16 (Section 8.4) & EIAO Guidance Note No. 3/2002.

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S.9.7.4	During dredging and filling operations, a number of mitigation measures to control water quality shall be adopted to confine sediment plume within reclamation area and protect marine fauna in proximity to the reclamation. The mitigation measures include the following: • Installation of silt curtains during dredging activities • Use of tightly-closed grab dredger • Reduction of dredging rate • Control of grab descending speed • Construction of leading edges of seawall in the early stages of the reclamation works	Work site / during construction phase	Contractor		√			EIAO TM Annex 16 (Section 8.4) & EIAO Guidance Note No. 3/2002.
	• Adoption of multiple-phase construction schedule							

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S.9.7.6	To minimize potential disturbance impacts on the foraging ardeid population in the CBTS, particularly in the area near the A King Shipyard, appropriate mitigation measures shall be adopted particularly during the construction phase. The following measures are recommended: • Use of Quiet Mechanical Plant during the construction phase shall be adopted wherever possible. • Adoption of multiple-phase construction schedule. • General measures to reduce noise generated during the construction phase (see noise impact assessment) shall be effectively implemented.	Work site / during construction phase	Contractor		√			EIAO TM Annex 16 (Section 8.4) & EIAO Guidance Note No. 3/2002.
S.9.7.7	Seawalls shall be constructed in advance around the reclamation areas within the area of the CBTS to screen adjacent feeding ground from construction phase activities, reduce noise disturbance to the associated seabirds and also to restrict access to this habitat adjacent to works areas by ship traffic.	Work site / during construction phase	Contractor		√			EIAO TM Annex 16 (Section 8.4) & EIAO Guidance Note No. 3/2002.
S.9.7.8	Loss of artificial seawall habitats shall be reinstated by the construction of about 1 km vertical wave absorbing seawall along the coastlines of the new reclamation around the HKCEC and at North Point. The new seawalls are expected to provide large area of hard substrata for settlement and recruitment of intertidal fauna similar to those previously recorded from existing intertidal habitats.	Work site / during construction phase	Contractor		√			EIAO TM Annex 16 (Section 8.4) & EIAO Guidance Note No. 3/2002.

*Des - Design, C - Construction, O – Operation, and Dec - Decommissioning

Table A13.7 Implementation Schedule for Landscape and Visual

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
Construction Phase								
For the Whole Project								
Table 10.5	CM1 Topsoil, where identified, shall be stripped and stored for re-use in the construction of the soft landscape works, where practical.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM2 Existing trees to be retained on site shall be carefully protected during construction.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM3 Trees unavoidably affected by the works shall be transplanted where practical.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM4 Compensatory tree planting shall be provided to compensate for felled trees.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM5 Control of night-time lighting.	Work site / During Construction Phase	Contractor		√			EIAO TM
Table 10.5	CM6 Erection of decorative screen hoarding compatible with the surrounding setting.	Work site / During Construction Phase	Contractor		√			EIAO TM
For DP1 – CWB (Within the Project Boundary)								
Table 10.5	CM1 Topsoil, where identified, shall be stripped and stored for re-use in the construction of the soft landscape works, where practical.	Work site / During Construction Phase	Contractor		√			EIAO TM
Table 10.5	CM2 Existing trees to be retained on site shall be carefully protected during construction.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM3 Trees unavoidably affected by the works shall be transplanted where practical.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM4 Compensatory tree planting shall be provided to compensate for felled trees.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM5 Control of night-time lighting.	Work site / During Construction Phase	Contractor		√			EIAO TM

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
Table 10.5	CM6 Erection of decorative screen hoarding compatible with the surrounding setting.	Work site / During Construction Phase	Contractor		√			EIAO TM
For DP2 – WDII Major Roads (Road P2)								
Table 10.5	CM1 Topsoil, where identified, shall be stripped and stored for re-use in the construction of the soft landscape works, where practical.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM2 Existing trees to be retained on site shall be carefully protected during construction.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM3 Trees unavoidably affected by the works shall be transplanted where practical.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM4 Compensatory tree planting shall be provided to compensate for felled trees.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM5 Control of night-time lighting.	Work site / During Construction Phase	Contractor		√			EIAO TM
Table 10.5	CM6 Erection of decorative screen hoarding compatible with the surrounding setting.	Work site / During Construction Phase	Contractor		√			EIAO TM
For DP3 – Reclamation Works								
Table 10.5	CM5 Control of night-time lighting.	Work site / During Construction Phase	Contractor		√			EIAO TM
Table 10.5	CM6 Erection of decorative screen hoarding compatible with the surrounding setting.	Work site / During Construction Phase	Contractor		√			EIAO TM
For DP5 – Wan Chai East Sewage Outfall								
Refer to EIA-058/2001 Table 10.13	CM2 Minimisation of works areas.	Work site / During Construction Phase	Contractor		√			EIAO TM
Refer to EIA-058/2001 Table 10.13	CM3 Erection of decorative hoardings.	Work site / During Construction Phase	Contractor		√			EIAO TM

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
Refer to EIA-058/2001 Table 10.13	CM4 Control night-time lighting.	Work site / During Construction Phase	Contractor		√			EIAO TM
Refer to EIA-058/2001 Table 10.13	CM5 Minimisation of disruption to public by effective programming of the works.	Work site / During Construction Phase	Contractor		√			EIAO TM
For DP6 – Cross-Harbour Water Mains from Wan Chai to Tsim Sha Tsui								
Refer to EIA-058/2001 Table 10.13	CM2 Minimisation of works areas.	Work site / During Construction Phase	Contractor		√			EIAO TM
Refer to EIA-058/2001 Table 10.13	CM3 Erection of decorative hoardings.	Work site / During Construction Phase	Contractor		√			EIAO TM
Refer to EIA-058/2001 Table 10.13	CM4 Control night-time lighting.	Work site / During Construction Phase	Contractor		√			EIAO TM
Refer to EIA-058/2001 Table 10.13	CM5 Minimisation of disruption to public by effective programming of the works.	Work site / During Construction Phase	Contractor		√			EIAO TM
Operation Phase								
For the Whole Project - Schedule 3 DP								
Table 10.6, Figure 10.5.1-10.5.5	OM1 Aesthetic design of buildings and road-related structures, including viaducts, vent buildings, subways, footbridges and noise barriers and enclosure.	Work site / During Design Stage and Operation Phases	CEDD/HyD	√	√	√		ETWB TCW 2/2004
Table 10.6, Figure 10.5.1-10.5.5	OM2 Shrub and Climbing Plants to soften proposed structures.	Work site / During Design Stage and Operation Phases	CEDD/HyD	√	√	√		ETWB TCW 2/2004

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
Table 10.6, Figure 10.5.1-10.5.5	OM3 Buffer Tree and Shrub Planting to screen proposed roads and associated structures.	Work site / During Design Stage and Operation Phases	CEDD/HyD/	√	√	√		ETWB TCW 2/2004
Table 10.6, Figure 10.5.1-10.5.5	OM4 Aesthetic design of proposed waterfront promenade.	Work site / During Design Stage and Operation Phases	CEDD[4]	√	√	√		ETWB TCW 2/2004
Table 10.6, Figure 10.5.1-10.5.5	OM5 Aesthetic streetscape design.	Work site / During Design Stage and Operation Phases	CEDD/HyD	√	√	√		ETWB TCW 2/2004
Table 10.6, Figure 10.5.1-10.5.5	OM6 Aesthetic design of roadside amenity areas.	Work site / During Design Stage and Operation Phases	CEDD/HyD	√	√	√		ETWB TCW 2/2004
For DP1 – CWB (Within the Project Boundary)								
Table 10.6, Figure 10.5.1-10.5.5	OM1 Aesthetic design of buildings and road-related structures, including viaducts, vent buildings, subways, footbridges and noise barriers and enclosure.	Work site / During Design Stage and Operation Phases	HyD	√	√	√		ETWB TCW 2/2004
Table 10.6, Figure 10.5.1-10.5.5	OM2 Shrub and Climbing Plants to soften proposed structures	Work site / During Design Stage and Operation Phases	HyD	√	√	√		ETWB TCW 2/2004
Table 10.6, Figure 10.5.1-10.5.5	OM3 Buffer Tree and Shrub Planting to screen proposed roads and associated structures.	Work site / During Design Stage and Operation Phases	HyD	√	√	√		ETWB TCW 2/2004
Table 10.6, Figure 10.5.1-10.5.5	OM5 Aesthetic streetscape design.	Work site / During Design Stage and Operation Phases	HyD	√	√	√		ETWB TCW 2/2004
Table 10.6, Figure 10.5.1-10.5.5	OM6 Aesthetic design of roadside amenity areas.	Work site / During Design Stage and Operation Phases	HyD	√	√	√		ETWB TCW 2/2004
For DP2 – WDII Major Roads (Road P2)								

[4] CEDD will identify an implementation agent

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
Table 10.6, Figure 10.5.1-10.5.5	OM1 Aesthetic design of buildings and road-related structures, including viaducts, vent buildings, subways, footbridges and noise barriers and enclosure.	Work site / During Design Stage and Operation Phases	CEDD/HyD		√	√		ETWB TCW 2/2004
Table 10.6, Figure 10.5.1-10.5.5	OM3 Buffer Tree and Shrub Planting to screen proposed roads and associated structures.	Work site / During Design Stage and Operation Phases	CEDD/HyD		√	√		ETWB TCW 2/2004
Table 10.6, Figure 10.5.1-10.5.5	OM5 Aesthetic streetscape design.	Work site / During Design Stage and Operation Phases	CEDD/HyD		√	√		ETWB TCW 2/2004
Table 10.6, Figure 10.5.1-10.5.5	OM6 Aesthetic design of roadside amenity areas	Work site / During Design Stage and Operation Phases	CEDD/HyD		√	√		ETWB TCW 2/2004
For DP3 – Reclamation Works								
Table 10.6, Figure 10.5.1-10.5.5	OM4 Aesthetic design of proposed waterfront promenade.	Work site / During Design Stage and Operation Phases	CEDD[5]	√	√	√		ETWB TCW 2/2004

*Des - Design, C - Construction, O – Operation, and Dec - Decommissioning

[5] CEDD will identify an implementation agent

Appendix 4.1

Action and Limit Level

Action and Limit Level

Action and Limit Level for Noise Monitoring

Time Period	Action Level	Limit Level
07:00 – 19:00 hours on normal weekdays	When one documented complaint is received.	75 dB(A)[Note 1]

Note 1:
- 70dB(A) and 65 dB(A) for schools during normal teaching periods and school examination periods, respectively.
- If works are to be carried out during the restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed.

Action and Limit Level for Air Quality Monitoring

Monitoring Location	1-hour TSP Level in $\mu g/m^3$		24-hour TSP Level in $\mu g/m^3$	
	Action Level	Limit Level	Action Level	Limit Level
CMA1b	320.1	500	176.7	260
CMA2a	323.4	500	169.5	260
CMA3a	311.3	500	171.0	260
CMA4a	312.5	500	171.2	260
CMA5b	332.0	500	181.0	260
CMA6a	300.1	500	187.3	260

Action and Limit Level for Water Quality Monitoring

Parameters	Dry Season		Wet Season	
	Action	Limit	Action	Limit
WSD Salt Water Intake				
SS in mg L^{-1}	13.00	14.43	16.26	19.74
Turbidity in NTU	8.04	9.49	10.01	11.54
DO in mg/L	3.66	3.28	3.17	2.63
Cooling Water Intake				
SS in mg L^{-1}	15.00	22.13	18.42	27.54
Turbidity in NTU	9.10	10.25	11.35	12.71
DO in mg/L	3.36	2.73	3.02	2.44

Remarks:
- Action and Limit Level for the wet season are applied after the EPD approval of Updated EM&A Manual on 29 April 2011.

Action and Limit Level for Enhance DO Monitoring

Parameters	Depth	Dry Season		Wet Season	
		Action	Limit	Action	Limit
C6	Surface and Middle	3.13	2.00	2.60	2.00
	Bottom	4.14	3.33	2.91	2.34
C7	Surface and Middle	3.87	3.09	3.31	2.57
	Bottom	3.91	3.53	2.75	2.48
Ex-WPCWA SW	Surface and Middle	3.84	3.73	3.19	3.10
	Bottom	4.71	4.63	3.31	3.25
Ex-WPCWA SE	Surface and Middle	4.26	3.61	3.55	3.00
	Bottom	5.36	5.35	3.76	3.76

Action and Limit Levels for Odour Patrol

Parameters	Action	Limit
Odour Nuisance (from odour intensity analysis or odour patrol)	• When two documented complaint are received; or • Odour Intensity of 2 is measured from odour intensity analysis.	• Five or more consecutive genuine documented complaints within a week; or • Odour Intensity of 3 or above is measured from odour intensity analysis.

Appendix 4.2

Copies of Calibration Certificates

TISCH Environmental

RECALIBRATION DUE DATE:
January 11, 2020

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	January 11, 2019	**Rootsmeter S/N:** 438320	**Ta:** 293	°K
Operator:	Jim Tisch		**Pa:** 760.7	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **0005**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4090	3.2	2.00
2	3	4	1	0.9980	6.4	4.00
3	5	6	1	0.8900	7.8	5.00
4	7	8	1	0.8450	8.7	5.50
5	9	10	1	0.6990	12.6	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0138	0.7195	1.4269	0.9958	0.7067	0.8777
1.0095	1.0115	2.0180	0.9916	0.9936	1.2412
1.0076	1.1321	2.2561	0.9897	1.1121	1.3877
1.0064	1.1910	2.3663	0.9886	1.1699	1.4555
1.0012	1.4323	2.8538	0.9834	1.4069	1.7553
QSTD	**m=**	**1.99861**	**QA**	**m=**	**1.25149**
	b=	**-0.00882**		**b=**	**-0.00543**
	r=	**0.99997**		**r=**	**0.99997**

Calculations

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

For subsequent flow rate calculations:

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

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

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg

Key
ΔH: calibrator manometer reading (in H2O)
ΔP: rootsmeter manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION
US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

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TOLL FREE: (877)263-7610
FAX: (513)467-9009

Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA1b	**Calbration Date**	:	18-Feb-19
Equipment no.	:	HVS001	**Calbration Due Date**	:	20-Apr-19

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	291	Kelvin	**Pressure, P_a**	1015	mmHg

Orifice Transfer Standard Information					
Equipment No.	**Ori0005**	**Slope, m_c**	1.99861	**Intercept, bc**	-0.00882
Last Calibration Date	11-Jan-19	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$			
Next Calibration Date	11-Jan-20	$= m_c \times Q_{std} + b_c$			

Calibration of TSP						
Calibration Point	**Manometer Reading H (inches of water)**			**Q_{std}** (m^3 / min.) **X-axis**	**Continuous Flow Recorder, W** (CFM)	**IC** $(W(P_a/1013.3\times298/T_a)^{1/2}/35.31)$ **Y-axis**
	(up)	(down)	(difference)			
1	1.4	1.4	2.8	0.8524	22	22.2817
2	2.4	2.4	4.8	1.1147	34	34.4354
3	3.6	3.6	7.2	1.3642	42	42.5378
4	4.6	4.6	9.2	1.5415	47	47.6018
5	5.9	5.9	11.8	1.7452	54	54.6914

By Linear Regression of Y on X

Slope, m	=	35.4579	Intercept, b	=	-6.6215
Correlation Coefficient*	=	0.9958			
Calibration Accepted	=	Yes/~~No~~**			

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : _____

Calibrated by	:	Henry Lau	**Checked by**	:	Chan Ka Chun
Date	:	18-Feb-19	**Date**	:	18-Feb-19

Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA1b	**Calbration Date**	:	16-Apr-19
Equipment no.	:	HVS001	**Calbration Due Date**	:	16-Jun-19

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	294	Kelvin	**Pressure, P_a**	1013	mmHg

Orifice Transfer Standard Information					
Equipment No.	**0005**	**Slope, m_c**	1.99861	**Intercept, bc**	-0.00882
Last Calibration Date	11-Jan-19	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$			
Next Calibration Date	11-Jan-20	$= m_c \times Q_{std} + b_c$			

Calibration of TSP						
Calibration Point	**Manometer Reading H (inches of water)**			**Q_{std}** (m^3 / min.)	**Continuous Flow Recorder, W**	**IC** ($W(P_a/1013.3 \times 298/T_a)^{1/2}/35.31$)
	(up)	(down)	(difference)	**X-axis**	(CFM)	**Y-axis**
1	1.5	1.5	3.0	0.8768	23	23.1525
2	2.4	2.4	4.8	1.1079	33	33.2188
3	3.4	3.4	6.8	1.3178	40	40.2652
4	4.5	4.5	9.0	1.5154	50	50.3315
5	5.6	5.6	11.2	1.6900	56	56.3713

By Linear Regression of Y on X

Slope, m	=	41.0841	Intercept, b	=	-12.8064
Correlation Coefficient*	=	0.9984			
Calibration Accepted	=	Yes/~~No~~**			

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : _____

Calibrated by	:	Henry Lau	**Checked by**	:	Dean Chan
Date	:	16-Apr-19	**Date**	:	16-Apr-19

Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA2a	**Calbration Date**	:	18-Feb-19
Equipment no.	:	HVS002	**Calbration Due Date**	:	20-Apr-19

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	291	Kelvin	**Pressure, P_a**	1015	mmHg

Orifice Transfer Standard Information					
Equipment No.	**Ori0005**	**Slope, m_c**	1.99861	**Intercept, bc**	-0.00882
Last Calibration Date	11-Jan-19	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$			
Next Calibration Date	11-Jan-20	$= m_c \times Q_{std} + b_c$			

Calibration of TSP						
Calibration Point	**Manometer Reading H (inches of water)** (up)	(down)	(difference)	**Q_{std}** (m^3 / min.) **X-axis**	**Continuous Flow Recorder, W** (CFM)	**IC** $(W(P_a/1013.3x298/T_a)^{1/2}/35.31)$ **Y-axis**
1	1.7	1.7	3.4	0.9388	24	24.3073
2	2.4	2.4	4.8	1.1147	33	33.4225
3	4.0	4.0	8.0	1.4377	42	42.5378
4	5.1	5.1	10.2	1.6229	50	50.6402
5	6.2	6.2	12.4	1.7889	58	58.7427

By Linear Regression of Y on X

Slope, m = 38.5348 Intercept, b = -11.2706

Correlation Coefficient* = 0.9949

Calibration Accepted = Yes/~~No~~**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks :

Calibrated by	:	Henry Lau	**Checked by**	:	Chan Ka Chun
Date	:	18-Feb-19	**Date**	:	18-Feb-19

Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA2a	**Calbration Date**	:	16-Apr-19
Equipment no.	:	HVS002	**Calbration Due Date**	:	16-Jun-19

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	294	Kelvin	**Pressure, P_a**	1013	mmHg

Orifice Transfer Standard Information					
Equipment No.	**0005**	**Slope, m_c**	1.99861	**Intercept, bc**	-0.00882
Last Calibration Date	11-Jan-19	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$			
Next Calibration Date	11-Jan-20	$= m_c \times Q_{std} + b_c$			

Calibration of TSP						
Calibration Point	**Manometer Reading H (inches of water)**			**Q_{std}** (m^3 / min.)	**Continuous Flow Recorder, W**	**IC** ($W(P_a/1013.3\times298/T_a)^{1/2}/35.31$)
	(up)	(down)	(difference)	**X-axis**	(CFM)	**Y-axis**
1	1.7	1.7	3.4	0.9331	23	23.1525
2	2.5	2.5	5.0	1.1306	34	34.2254
3	3.6	3.6	7.2	1.3559	41	41.2719
4	5.0	5.0	10.0	1.5971	48	48.3183
5	5.6	5.6	11.2	1.6900	55	55.3647

By Linear Regression of Y on X

Slope, m	=	39.1656	Intercept, b	=	-12.0687
Correlation Coefficient*	=	0.9902			
Calibration Accepted	=	Yes/~~No~~**			

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : _____

Calibrated by	:	Henry Lau	**Checked by**	:	Dean Chan
Date	:	16-Apr-19	**Date**	:	16-Apr-19

Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA3a	**Calbration Date**	:	18-Feb-19
Equipment no.	:	HVS012	**Calbration Due Date**	:	20-Apr-19

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	291	Kelvin	**Pressure, P_a**	1015	mmHg

Orifice Transfer Standard Information					
Equipment No.	**Ori0005**	**Slope, m_c**	1.99861	**Intercept, bc**	-0.00882
Last Calibration Date	11-Jan-19	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$			
Next Calibration Date	11-Jan-20	$= m_c \times Q_{std} + b_c$			

Calibration of TSP						
Calibration Point	**Manometer Reading H (inches of water)**			**Q_{std}** (m^3 / min.)	**Continuous Flow Recorder, W**	**IC** $(W(P_a/1013.3 \times 298/T_a)^{1/2}/35.31)$
	(up)	(down)	(difference)	**X-axis**	(CFM)	**Y-axis**
1	1.3	1.3	2.6	0.8215	30	30.3841
2	2.0	2.0	4.0	1.0179	38	38.4866
3	3.1	3.1	6.2	1.2662	44	44.5634
4	4.0	4.0	8.0	1.4377	49	49.6274
5	5.0	5.0	10.0	1.6069	54	54.6914

By Linear Regression of Y on X

Slope, m = 29.9992 Intercept, b = 6.6497

Correlation Coefficient* = 0.9964

Calibration Accepted = Yes/~~No~~**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks :

Calibrated by	:	Henry Lau	**Checked by**	:	Chan Ka Chun
Date	:	18-Feb-19	**Date**	:	18-Feb-19

Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA3a	**Calbration Date**	:	16-Apr-19
Equipment no.	:	HVS012	**Calbration Due Date**	:	16-Jun-19

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition				
Temperature, T_a	294 Kelvin	**Pressure, P_a**	1013	mmHg

Orifice Transfer Standard Information					
Equipment No.	**0005**	**Slope, m_c**	1.99861	**Intercept, bc**	-0.00882
Last Calibration Date	11-Jan-19	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$			
Next Calibration Date	11-Jan-20	$= m_c \times Q_{std} + b_c$			

Calibration of TSP						
Calibration Point	**Manometer Reading H (inches of water)**			**Q_{std}** (m^3 / min.)	**Continuous Flow Recorder, W**	**IC** ($W(P_a/1013.3\times298/T_a)^{1/2}/35.31$)
	(up)	(down)	(difference)	**X-axis**	(CFM)	**Y-axis**
1	1.2	1.2	2.4	0.7847	28	28.1857
2	2.1	2.1	4.2	1.0366	36	36.2387
3	3.1	3.1	6.2	1.2585	40	40.2652
4	4.2	4.2	8.4	1.4642	48	48.3183
5	5.1	5.1	10.2	1.6130	51	51.3382

By Linear Regression of Y on X

Slope, m = 28.0357 Intercept, b = 6.3461

Correlation Coefficient* = 0.9950

Calibration Accepted = Yes/~~No~~**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : _____

Calibrated by	:	Henry Lau	**Checked by**	:	Dean Chan
Date	:	16-Apr-19	**Date**	:	16-Apr-19

Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA4a	**Calbration Date**	:	18-Feb-19
Equipment no.	:	HVS004	**Calbration Due Date**	:	20-Apr-19

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	291	Kelvin	**Pressure, P_a**	1015	mmHg

Orifice Transfer Standard Information					
Equipment No.	**Ori0005**	**Slope, m_c**	1.99861	**Intercept, bc**	-0.00882
Last Calibration Date	11-Jan-19	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$			
Next Calibration Date	11-Jan-20	$= m_c \times Q_{std} + b_c$			

Calibration of TSP						
Calibration Point	**Manometer Reading H (inches of water)** (up)	(down)	(difference)	**Q_{std}** (m^3 / min.) **X-axis**	**Continuous Flow Recorder, W** (CFM)	**IC** $(W(P_a/1013.3x298/T_a)^{1/2}/35.31)$ **Y-axis**
1	1.4	1.4	2.8	0.8524	22	22.2817
2	2.2	2.2	4.4	1.0674	33	33.4225
3	2.9	2.9	5.8	1.2248	40	40.5122
4	4.1	4.1	8.2	1.4555	47	47.6018
5	5.8	5.8	11.6	1.7304	58	58.7427

By Linear Regression of Y on X

Slope, m = 40.4458 Intercept, b = -10.6963

Correlation Coefficient* = 0.9957

Calibration Accepted = Yes/~~No~~**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks :

Calibrated by	:	Henry Lau	**Checked by**	:	Chan Ka Chun
Date	:	18-Feb-19	**Date**	:	18-Feb-19

Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA4a	**Calbration Date**	:	16-Apr-19
Equipment no.	:	HVS004	**Calbration Due Date**	:	16-Jun-19

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	294	Kelvin	**Pressure, P_a**	1013	mmHg

Orifice Transfer Standard Information					
Equipment No.	**0005**	**Slope, m_c**	1.99861	**Intercept, bc**	-0.00882
Last Calibration Date	11-Jan-19	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$			
Next Calibration Date	11-Jan-20	$= m_c \times Q_{std} + b_c$			

Calibration of TSP						
Calibration Point	**Manometer Reading H (inches of water)**			**Q_{std}** (m^3 / min.)	**Continuous Flow Recorder, W**	**IC** ($W(P_a/1013.3 \times 298/T_a)^{1/2}/35.31$)
	(up)	(down)	(difference)	**X-axis**	(CFM)	**Y-axis**
1	1.3	1.3	2.6	0.8165	20	20.1326
2	2.1	2.1	4.2	1.0366	30	30.1989
3	2.8	2.8	5.6	1.1963	36	36.2387
4	4.0	4.0	8.0	1.4290	43	43.2851
5	5.6	5.6	11.2	1.6900	52	52.3448

By Linear Regression of Y on X

Slope, m = 36.1142 Intercept, b = -8.1138

Correlation Coefficient* = 0.9967

Calibration Accepted = Yes/~~No~~**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : _____

Calibrated by	:	Henry Lau	**Checked by**	:	Dean Chan
Date	:	16-Apr-19	**Date**	:	16-Apr-19

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港黃竹坑道37號利達中心12樓
12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
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CERTIFICATE OF CALIBRATION

Certificate No.: 18CA1114 02 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	B & K	,	B & K
Type/Model No.:	2236	,	4188
Serial/Equipment No.:	2100736	,	2288941
Adaptors used:	-	,	-

Item submitted by

Customer Name:	Lam Environmental Service Ltd.
Address of Customer:	-
Request No.:	-
Date of receipt:	14-Nov-2018

Date of test: 15-Nov-2018

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-Aug-2019	CIGISMEC
Signal generator	DS 360	33873	24-Apr-2019	CEPREI
Signal generator	DS 360	61227	23-Apr-2019	CEPREI

Ambient conditions

Temperature:	20 ± 1 °C
Relative humidity:	50 ± 10 %
Air pressure:	1000 ± 5 hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsess of the Sound Level Meter.

Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory: Feng Jungi Date: 15-Nov-2018 Company Chop:

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

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
E-mail: smec@cigismec.com Website: www.cigismec.com
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CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 18CA1114 02 Page 2 of 2

1, Electrical Tests

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

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

2, Acoustic tests

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

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

3, Response to associated sound calibrator

N/A

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

- End -

Calibrated by: Fung Chi Yip Date: 15-Nov-2018

Checked by: Shek Kwong Tat Date: 15-Nov-2018

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

Calibration Certificate

Certificate Number 2018010851

Customer:
LAM Environmental Services Ltd
11/F Centre Point
181-185 Gloucester Road
Wanchai, , Hong Kong

Model Number	CAL200	***Procedure Number***	D0001.8386		
Serial Number	13098	***Technician***	Scott Montgomery		
Test Results	**Pass**	***Calibration Date***	29 Oct 2018		
Initial Condition	Inoperable	***Calibration Due***			
		Temperature	23	°C	± 0.3 °C
Description	Larson Davis CAL200 Acoustic Calibrator	***Humidity***	34	%RH	± 3 %RH
		Static Pressure	101.2	kPa	± 1 kPa

Evaluation Method The data is aquired by the insert voltage calibration method using the reference microphone's open circuit sensitivity. Data reported in dB re 20 µPa.

Compliance Standards Compliant to Manufacturer Specifications per D0001.8190 and the following standards:
IEC 60942:2017 ANSI S1.40-2006

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the SI through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2005.
Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2008.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

Standards Used

Description	Cal Date	Cal Due	Cal Standard
Agilent 34401A DMM	09/06/2018	09/06/2019	001021
Larson Davis Model 2900 Real Time Analyzer	04/10/2018	04/10/2019	001051
Microphone Calibration System	03/07/2018	03/07/2019	005446
1/2" Preamplifier	09/20/2018	09/20/2019	006506
Larson Davis 1/2" Preamplifier 7-pin LEMO	08/07/2018	08/07/2019	006507
1/2 inch Microphone - RI - 200V	05/10/2018	05/10/2019	006510
Pressure Transducer	07/18/2018	07/18/2019	007368

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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CERTIFICATE OF CALIBRATION

Certificate No.: 18CA1220 02 **Page:** 1 **of** 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	Larson Davis
Type/Model No.:	CAL200
Serial/Equipment No.:	13128
Adaptors used:	-

Item submitted by

Customer:	Lam Environmental Service Ltd.
Address of Customer:	-
Request No.:	-
Date of receipt:	20-Dec-2018

Date of test: 28-Dec-2018

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2412857	20-Apr-2019	SCL
Preamplifier	B&K 2673	2239857	27-Apr-2019	CEPREI
Measuring amplifier	B&K 2610	2346941	08-May-2019	CEPREI
Signal generator	DS 360	33873	24-Apr-2019	CEPREI
Digital multi-meter	34401A	US36087050	23-Apr-2019	CEPREI
Audio analyzer	8903B	GB41300350	23-Apr-2019	CEPREI
Universal counter	53132A	MY40003662	24-Apr-2019	CEPREI

Ambient conditions

Temperature:	20 ± 1 °C
Relative humidity:	50 ± 10 %
Air pressure:	1000 ± 5 hPa

Test specifications

1. The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
2. The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
3. The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

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

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

Approved Signatory: Feng Junqi **Date:** 29-Dec-2018 **Company Chop:** SOILS & MATERIALS ENGINEERING CO., LTD. 綜合試驗有限公司

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

綜合試驗有限公司
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CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 18CA1220 02 **Page:** 2 **of** 2

1, Measured Sound Pressure Level

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

(Output level in dB re 20 μPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	93.84	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

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

At 1000 Hz **STF = 0.006 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

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

At 1000 Hz **Actual Frequency = 999.4 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

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

At 1000 Hz **TND = 0.4%**

Estimated expanded uncertainty 0.7 %

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

- End -

Calibrated by: Fung Chi Yip **Checked by:** Shek Kwong Tat

Date: 28-Dec-2018 **Date:** 29-Dec-2018

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

FT Laboratories Ltd
科達測檢試驗所有限公司

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

Information supplied by customer:

CONTACT:	**MR. CHAN KA CHUN**	**JOB REFERENCE NO.:**	**22787053-B23V2601**
CLIENT:	**LAM GEOTECHNICS LIMITED**		
DATE RECEIVED:	**31/01/2019**		
DATE OF ISSUE:	**31/01/2019**		
ADDRESS:	**11/F, CENTRE POINT, 181-185, GLOUCESTER ROAD, WANCHAI, HONG KONG**		
PROJECT:	**---**		

METHOD OF PERFORMANCE CHECK/ CALIBRATION:
Ref: APHA22nd ed 2130B

COMMENTS
It is certified that the item under performance check/calibration has been calibrated/checked by corresponding calibrated equipment in the laboratory.
Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of FT Laboratories Ltd will be followed.

Scope of Test:	Turbidity
Equipment Type:	Turbidimeter
Brand Name:	Xin Rui
Model No.:	WGZ-3B
Serial No.:	1807077
Equipment No.:	---
Date of Calibration:	31/01/2019

Remarks:
This is the Final Report. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Certified By: _____
HO Lai Sze
Senior Chemist

Issue Date: 31/01/2019

Address: Lot No. DD77 Section 1552 S.A. ss 1RP, Ng Chow South Road, Ping Che, N.T., H. K..
Tel: 27584861, Fax: 27588962

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

WORK ORDER: 22787053-B23V2601
DATE OF ISSUE: 31/01/2019
CLIENT: LAM GEOTECHNICS LIMITED

Equipment Type:	Turbidimeter
Brand Name:	Xin Rui
Model No.:	WGZ-3B
Serial No.:	1807077
Equipment No.:	---
Date of Calibration:	31/01/2019
Date of next Calibation:	30/04/2019
Lab ID:	H190048-01

Parameters:
Turbidity

Method Ref: APHA 22nd ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance
0	0.00	---
4	3.88	-3.0%
10	9.44	-5.6%
40	41.24	3.1%
100	100.00	0.0%
400	400	0.0%
1000	996	-0.4%
	Tolerance Limit (±)	10%

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

Address: Lot No. DD77 Section 1552 S.A. ss 1RP, Ng Chow South Road, Ping Che, N.T., H. K..
Tel: 27584861, Fax: 27588962

FT Laboratories Ltd
科達測檢試驗所有限公司

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

Information supplied by customer:

CONTACT:	**MR. CHAN KA CHUN**	**JOB REFERENCE NO.:**	**22787053-B23V2602**
CLIENT:	**LAM GEOTECHNICS LIMITED**		
DATE RECEIVED:	**31/01/2019**		
DATE OF ISSUE:	**31/01/2019**		
ADDRESS:	**11/F, CENTRE POINT, 181-185, GLOUCESTER ROAD, WANCHAI, HONG KONG**		
PROJECT:	**---**		

METHOD OF PERFORMANCE CHECK/ CALIBRATION:
Ref: APHA22nd ed 2130B

COMMENTS
It is certified that the item under performance check/calibration has been calibrated/checked by corresponding calibrated equipment in the laboratory.
Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of FT Laboratories Ltd will be followed.

Scope of Test:	Turbidity
Equipment Type:	Turbidimeter
Brand Name:	Xin Rui
Model No.:	WGZ-3B
Serial No.:	1807079
Equipment No.:	---
Date of Calibration:	31/01/2019

Remarks:
This is the Final Report. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Certified By: _____ Issue Date: 31/01/2019
HO Lai Sze
Senior Chemist

Address: Lot No. DD77 Section 1552 S.A. ss 1RP, Ng Chow South Road, Ping Che, N.T., H. K..
Tel: 27584861, Fax: 27588962

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

WORK ORDER: 22787053-B23V2602
DATE OF ISSUE: 31/01/2019
CLIENT: LAM GEOTECHNICS LIMITED

Equipment Type:	Turbidimeter
Brand Name:	Xin Rui
Model No.:	WGZ-3B
Serial No.:	1807079
Equipment No.:	---
Date of Calibration:	31/01/2019
Date of next Calibation:	30/04/2019
Lab ID:	H190048-02

Parameters:
Turbidity

Method Ref: APHA 22nd ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance
0	0.00	---
4	3.94	-1.5%
10	10.01	0.1%
40	39.89	-0.3%
100	98.91	-1.1%
400	396	-1.0%
1000	1000	0.0%
	Tolerance Limit (±)	10%

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

Address: Lot No. DD77 Section 1552 S.A. ss 1RP, Ng Chow South Road, Ping Che, N.T., H. K..
Tel: 27584861, Fax: 27588962

FT Laboratories Ltd
科達測檢試驗所有限公司

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

Information supplied by customer:

CONTACT:	**MR. CHAN KA CHUN**	**JOB REFERENCE NO.:**	**22777053-C18V5302**
CLIENT:	**LAM ENVIRONMENTAL SERVICES LTD**		
DATE RECEIVED:	**18/03/2019**		
DATE OF ISSUE:	**27/03/2019**		
ADDRESS:	**11/F, CENTRE POINT, 181-185, GLOUCESTER ROAD, WANCHAI, HONG KONG**		
PROJECT:	---		

METHOD OF PERFORMANCE CHECK/ CALIBRATION:
Ref: APHA22nd ed 2130B

COMMENTS
It is certified that the item under performance check/calibration has been calibrated/checked by corresponding calibrated equipment in the laboratory.
Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of FT Laboratories Ltd will be followed.

Scope of Test:	Turbidity
Equipment Type:	Turbidimeter
Brand Name:	Xin Rui
Model No.:	WGZ-3B
Serial No.:	1807063
Equipment No.:	---
Date of Calibration:	22/03/2019

Remarks:
This is the Final Report. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Certified By: _____ Issue Date: 27/03/2019

HO Lai Sze
Senior Chemist

Address: Lot No. DD77 Section 1552 S.A. ss 1RP, Ng Chow South Road, Ping Che, N.T., H. K..
Tel: 27584861, Fax: 27588962

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

WORK ORDER: 22777053-C18V5302
DATE OF ISSUE: 27/03/2019
CLIENT: LAM ENVIRONMENTAL SERVICES LTD

Equipment Type:	Turbidimeter
Brand Name:	Xin Rui
Model No.:	WGZ-3B
Serial No.:	1807063
Equipment No.:	---
Date of Calibration:	22/03/2019
Date of next Calibation:	21/06/2019
Lab ID:	H190085-02

Parameters:
Turbidity

Method Ref: APHA 22nd ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance
0	0.00	---
4	4.00	0.0%
10	9.92	-0.8%
40	39.54	-1.2%
100	99.08	-0.9%
400	404	1.1%
1000	922	-7.8%
	Tolerance Limit (±)	10%

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

Address: Lot No. DD77 Section 1552 S.A. ss 1RP, Ng Chow South Road, Ping Che, N.T., H. K..
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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR CHAN KA CHUN	**WORK ORDER:**	HK1900006
CLIENT:	LAM ENVIRONMENTAL LTD		
ADDRESS:	11/F, CENTRE POINT, 181 - 185 GLOUCESTER ROAD WAN CHAI, HONG KONG	**SUB-BATCH:** **LABORATORY:** **DATE RECEIVED:** **DATE OF ISSUE:**	0 HONG KONG 31- Dec- 2018 10- Jan- 2019

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.
The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.
The "Next Calibration Date" is recommended according to best practice principle as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test:	Dissolved Oxygen, pH Value, Salinity and Temperature
Equipment Type:	Multifunctional Meter
Brand Name:	YSI
Model No.:	Professional Plus
Serial No.:	14M100277
Equipment No.:	- -
Date of Calibration:	10 January, 2019

NOTES

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

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

Mr Chan Siu Ming, Vico
Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK1900006

SUB-BATCH: 0
DATE OF ISSUE: 10-Jan-2019
CLIENT: LAM ENVIRONMENTAL LTD

Equipment Type: Multifunctional Meter
Brand Name: YSI
Model No.: Professional Plus
Serial No.: 14M100277
Equipment No.: --
Date of Calibration: 10 January, 2019 Date of Next Calibration: 10 April, 2019

PARAMETERS:

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

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
2.67	2.47	-0.20
6.20	6.28	+0.08
8.88	8.83	-0.05
	Tolerance Limit (mg/L)	±0.20

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

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	3.97	-0.03
7.0	6.84	-0.16
10.0	10.03	+0.03
	Tolerance Limit (pH unit)	±0.20

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

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	--
10	10.36	+3.6
20	18.90	-5.5
30	27.77	-7.4
	Tolerance Limit (%)	±10.0

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

Mr Chan Siu Ming, Vico
Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK1900006

SUB-BATCH: 0
DATE OF ISSUE: 10- Jan- 2019
CLIENT: LAM ENVIRONMENTAL LTD

Equipment Type: Multifunctional Meter
Brand Name: YSI
Model No.: Professional Plus
Serial No.: 14M100277
Equipment No.: - -
Date of Calibration: 10 January, 2019 Date of Next Calibration: 10 April, 2019

PARAMETERS:
Temperature

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

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
10.5	11.3	+0.8
21.0	19.8	-1.2
40.5	39.4	-1.1
	Tolerance Limit (°C)	±2.0

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

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REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

CONTACT:	CHAN KA CHUN	**WORK ORDER:**	HK1912921
CLIENT:	LAM ENVIRONMENTAL SERVICES LTD		
ADDRESS:	11/ F CENTRE POINT, 181- 185 GLOUCESTER ROAD, WANCHAI, HONG KONG	**SUB- BATCH:**	0
		LABORATORY:	HONG KONG
		DATE RECEIVED:	27- Mar- 2019
		DATE OF ISSUE:	02- Apr- 2019

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test:	Dissolved Oxygen, pH Value, Salinity and Temperature
Equipment Type:	Multifunctional Meter
Brand Name:	YSI
Model No.:	Professional Plus
Serial No.:	14M100277
Equipment No.:	- -
Date of Calibration:	02 April, 2019

NOTES

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

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

Mr Chan Siu Ming, Vico
Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

WORK ORDER: HK1912921

SUB- BATCH: 0
DATE OF ISSUE: 02- Apr- 2019
CLIENT: LAM ENVIRONMENTAL SERVICES LTD

Equipment Type: Multifunctional Meter
Brand Name: YSI
Model No.: Professional Plus
Serial No.: 14M100277
Equipment No.: - -
Date of Calibration: 02 April, 2019 Date of Next Calibration: 02 July, 2019

PARAMETERS:

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

Expected Reading (mg/ L)	Displayed Reading (mg/ L)	Tolerance (mg/ L)
2.85	2.66	- 0.19
5.99	5.79	- 0.20
8.54	8.57	+ 0.03
	Tolerance Limit (mg/ L)	± 0.20

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

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	3.82	- 0.18
7.0	6.83	- 0.17
10.0	9.87	- 0.13
	Tolerance Limit (pH unit)	± 0.20

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

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	- -
10	9.95	- 0.5
20	20.10	+ 0.5
30	30.03	+ 0.1
	Tolerance Limit (%)	± 10.0

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

Mr Chan Siu Ming, Vico
Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

WORK ORDER: HK1912921

SUB- BATCH: 0
DATE OF ISSUE: 02- Apr- 2019
CLIENT: LAM ENVIRONMENTAL SERVICES LTD

Equipment Type: Multifunctional Meter
Brand Name: YSI
Model No.: Professional Plus
Serial No.: 14M100277
Equipment No.: - -
Date of Calibration: 02 April, 2019 Date of Next Calibration: 02 July, 2019

PARAMETERS:

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

Expected Reading (^{o}C)	Displayed Reading (^{o}C)	Tolerance (^{o}C)
9.0	8.2	- 0.8
23.0	22.6	- 0.4
40.0	39.3	- 0.7
	Tolerance Limit (^{o}C)	± 2.0

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

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REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

CONTACT:	MR CHAN KA CHUN	**WORK ORDER:**	HK1901813
CLIENT:	LAM ENVIRONMENTAL LTD		
ADDRESS:	11/ F, CENTRE POINT, 181 - 185 GLOUCESTER ROAD WAN CHAI	**SUB- BATCH:**	0
		LABORATORY:	HONG KONG
		DATE RECEIVED:	10- Jan- 2019
		DATE OF ISSUE:	11- Feb- 2019

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.

The "Next Calibration Date" is recommended according to best practice principle as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test:	Dissolved Oxygen, Salinity and Temperature
Equipment Type:	Multifunctional Meter
Brand Name:	YSI
Model No.:	Professional Plus
Serial No.:	14K100322
Equipment No.:	- -
Date of Calibration:	18 January, 2019

NOTES

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

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

Mr Chan Siu Ming, Vico
Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

WORK ORDER: HK1901813

SUB- BATCH: 0
DATE OF ISSUE: 11- Feb- 2019
CLIENT: LAM ENVIRONMENTAL LTD

Equipment Type: Multifunctional Meter
Brand Name: YSI
Model No.: Professional Plus
Serial No.: 14K100322
Equipment No.: - -
Date of Calibration: 18 January, 2019 Date of Next Calibration: 18 April, 2019

PARAMETERS:

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

Expected Reading (mg/ L)	Displayed Reading (mg/ L)	Tolerance (mg/ L)
2.47	2.37	- 0.10
5.50	5.43	- 0.07
8.81	8.94	+ 0.13
	Tolerance Limit (mg/ L)	± 0.20

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

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	- -
10	10.73	+ 7.3
20	19.43	- 2.9
30	30.69	+ 2.3
	Tolerance Limit (%)	± 10.0

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

Expected Reading (^{o}C)	Displayed Reading (^{o}C)	Tolerance (^{o}C)
10.0	9.0	- 1.0
22.0	21.6	- 0.4
41.5	42.2	+ 0.7
	Tolerance Limit (^{o}C)	± 2.0

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

Mr Chan Siu Ming, Vico
Manager - Inorganic

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REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

CONTACT:	MR CHAN KA CHUN	**WORK ORDER:**	HK1903901
CLIENT:	LAM ENVIRONMENTAL LTD		
ADDRESS:	11/F, CENTRE POINT, 181 - 185 GLOUCESTER ROAD WAN CHAI	**SUB- BATCH:**	0
		LABORATORY:	HONG KONG
		DATE RECEIVED:	25-Jan-2019
		DATE OF ISSUE:	30-Jan-2019

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.
The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.
The "Next Calibration Date" is recommended according to best practice principle as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test:	pH Value and Temperature
Equipment Type:	Multifunctional Meter
Brand Name:	YSI
Model No.:	Professional Plus
Serial No.:	14K100322
Equipment No.:	--
Date of Calibration:	30 January, 2019

NOTES

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

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

Ms. Lin Wai Yu
Assistant Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

WORK ORDER: HK1903901

SUB- BATCH: 0
DATE OF ISSUE: 30-Jan-2019
CLIENT: LAM ENVIRONMENTAL LTD

Equipment Type: Multifunctional Meter
Brand Name: YSI
Model No.: Professional Plus
Serial No.: 14K100322
Equipment No.: --
Date of Calibration: 30 January, 2019 Date of Next Calibration: 30 April, 2019

PARAMETERS:

pH Value

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

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	4.14	+0.14
7.0	6.99	-0.01
10.0	9.80	-0.20
	Tolerance Limit (pH unit)	±0.20

Temperature

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

Expected Reading (^{o}C)	Displayed Reading (^{o}C)	Tolerance (^{o}C)
10.0	9.0	-1.0
22.0	21.6	-0.4
41.5	42.2	+0.7
	Tolerance Limit (^{o}C)	±2.0

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

Ms. Lin Wai Yu
Assistant Manager - Inorganic

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REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

CONTACT:	CHAN KA CHUN	**WORK ORDER:**	HK1914664
CLIENT:	LAM ENVIRONMENTAL SERVICES LTD		
ADDRESS:	11/F CENTRE POINT, 181-185 GLOUCESTER ROAD, WANCHAI, HONG KONG	**SUB- BATCH:**	0
		LABORATORY:	HONG KONG
		DATE RECEIVED:	04-Apr-2019
		DATE OF ISSUE:	11-Apr-2019

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.
The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test:	Dissolved Oxygen, pH Value, Salinity and Temperature
Equipment Type:	Multifunctional Meter
Brand Name:	YSI
Model No.:	Professional Plus
Serial No.:	14K100322
Equipment No.:	--
Date of Calibration:	10 April, 2019

NOTES

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

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

Ms. Lin Wai Yu
Assistant Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

WORK ORDER: HK1914664

SUB- BATCH: 0
DATE OF ISSUE: 11-Apr-2019
CLIENT: LAM ENVIRONMENTAL SERVICES LTD

Equipment Type: Multifunctional Meter
Brand Name: YSI
Model No.: Professional Plus
Serial No.: 14K100322
Equipment No.: --
Date of Calibration: 10 April, 2019 Date of Next Calibration: 10 July, 2019

PARAMETERS:

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

Expected Reading (mg/ L)	Displayed Reading (mg/ L)	Tolerance (mg/ L)
8.20	8.30	+0.10
6.04	5.98	-0.06
2.63	2.54	-0.09
	Tolerance Limit (mg/L)	±0.20

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

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	3.87	-0.13
7.0	6.90	-0.10
10.0	9.84	-0.16
	Tolerance Limit (pH unit)	±0.20

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

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	--
10	10.07	+0.7
20	20.20	+1.0
30	30.87	+2.9
	Tolerance Limit (%)	±10.0

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

Ms. Lin Wai Yu
Assistant Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

WORK ORDER: HK1914664

SUB- BATCH: 0
DATE OF ISSUE: 11-Apr-2019
CLIENT: LAM ENVIRONMENTAL SERVICES LTD

Equipment Type: Multifunctional Meter
Brand Name: YSI
Model No.: Professional Plus
Serial No.: 14K100322
Equipment No.: --
Date of Calibration: 10 April, 2019 Date of Next Calibration: 10 July, 2019

PARAMETERS:

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

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
9.5	10.4	+0.9
22.0	22.3	+0.3
40.0	39.7	-0.3
	Tolerance Limit (°C)	±2.0

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

Ms. Lin Wai Yu
Assistant Manager - Inorganic

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REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

CONTACT:	MR CHAN KA CHUN	**WORK ORDER:**	HK1901812
CLIENT:	LAM ENVIRONMENTAL LTD		
ADDRESS:	11/ F, CENTRE POINT, 181 - 185 GLOUCESTER ROAD WAN CHAI	**SUB- BATCH:**	0
		LABORATORY:	HONG KONG
		DATE RECEIVED:	10- Jan- 2019
		DATE OF ISSUE:	18- Jan- 2019

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.

The "Next Calibration Date" is recommended according to best practice principle as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test:	Dissolved Oxygen, pH Value, Salinity and Temperature
Equipment Type:	Multifunctional Meter
Brand Name:	YSI
Model No.:	Professional Plus
Serial No.:	17F100236
Equipment No.:	- -
Date of Calibration:	18 January, 2019

NOTES

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

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

Mr Chan Siu Ming, Vico
Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

WORK ORDER: HK1901812

SUB- BATCH: 0
DATE OF ISSUE: 18- Jan- 2019
CLIENT: LAM ENVIRONMENTAL LTD

Equipment Type: Multifunctional Meter
Brand Name: YSI
Model No.: Professional Plus
Serial No.: 17F100236
Equipment No.: - -
Date of Calibration: 18 January, 2019 Date of Next Calibration: 18 April, 2019

PARAMETERS:

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

Expected Reading (mg/ L)	Displayed Reading (mg/ L)	Tolerance (mg/ L)
2.65	2.45	- 0.20
6.02	5.92	- 0.10
8.88	8.94	+ 0.06
	Tolerance Limit (mg/ L)	± 0.20

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

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	4.03	+ 0.03
7.0	7.08	+ 0.08
10.0	10.16	+ 0.16
	Tolerance Limit (pH unit)	± 0.20

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

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	- -
10	10.20	+ 2.0
20	19.68	- 1.6
30	29.74	- 0.9
	Tolerance Limit (%)	± 10.0

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

Mr Chan Siu Ming, Vico
Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

WORK ORDER: HK1901812

SUB- BATCH: 0
DATE OF ISSUE: 18- Jan- 2019
CLIENT: LAM ENVIRONMENTAL LTD

Equipment Type: Multifunctional Meter
Brand Name: YSI
Model No.: Professional Plus
Serial No.: 17F100236
Equipment No.: - -
Date of Calibration: 18 January, 2019 Date of Next Calibration: 18 April, 2019

PARAMETERS:

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

Expected Reading (^{o}C)	Displayed Reading (^{o}C)	Tolerance (^{o}C)
10.0	9.5	- 0.5
22.0	21.3	- 0.7
41.5	42.3	+ 0.8
	Tolerance Limit (^{o}C)	± 2.0

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

Mr Chan Siu Ming, Vico
Manager - Inorganic

ALS Technichem (HK) Pty Ltd
11/F, Chung Shun Knitting Centre
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N.T., Hong Kong
T: +852 2610 1044 | F: +852 2610 2021

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

CONTACT:	CHAN KA CHUN	**WORK ORDER:**	HK1916521
CLIENT:	LAM ENVIRONMENTAL SERVICES LTD		
ADDRESS:	11/F CENTRE POINT, 181-185 GLOUCESTER ROAD, WANCHAI, HONG KONG	**SUB- BATCH:** **LABORATORY:** **DATE RECEIVED:** **DATE OF ISSUE:**	0 HONG KONG 17-Apr-2019 25-Apr-2019

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.
The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.
The "Next Calibration Date" is recommended according to best practice principle as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test:	Dissolved Oxygen, pH Value, Salinity and Temperature
Equipment Type:	Multifunctional Meter
Brand Name:	YSI
Model No.:	Professional Plus
Serial No.:	17F100236
Equipment No.:	--
Date of Calibration:	24-Apr-2019

NOTES

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

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

Ms. Lin Wai Yu
Assistant Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

WORK ORDER: HK1916521

SUB- BATCH: 0
DATE OF ISSUE: 25-Apr-2019
CLIENT: LAM ENVIRONMENTAL SERVICES LTD

Equipment Type: Multifunctional Meter
Brand Name: YSI
Model No.: Professional Plus
Serial No.: 17F100236
Equipment No.: --
Date of Calibration: 24-Apr-2019 Date of Next Calibration: 24-Jul-2019

PARAMETERS:

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

Expected Reading (mg/ L)	Displayed Reading (mg/ L)	Tolerance (mg/ L)
8.15	8.07	-0.08
5.90	6.05	+0.15
2.64	2.69	+0.05
	Tolerance Limit (mg/L)	±0.20

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

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	4.00	+0.00
7.0	7.20	+0.20
10.0	10.05	+0.05
	Tolerance Limit (pH unit)	±0.20

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

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	--
10	9.86	-1.4
20	19.53	-2.3
30	29.81	-0.6
	Tolerance Limit (%)	±10.0

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

Ms. Lin Wai Yu
Assistant Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

WORK ORDER: HK1916521

SUB- BATCH: 0
DATE OF ISSUE: 25-Apr-2019
CLIENT: LAM ENVIRONMENTAL SERVICES LTD

Equipment Type: Multifunctional Meter
Brand Name: YSI
Model No.: Professional Plus
Serial No.: 17F100236
Equipment No.: --
Date of Calibration: 24-Apr-2019 Date of Next Calibration: 24-Jul-2019

PARAMETERS:

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

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
9.5	9.7	+0.2
22.0	22.1	+0.1
38.5	38.2	-0.3
	Tolerance Limit (°C)	±2.0

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

Ms. Lin Wai Yu
Assistant Manager - Inorganic

Appendix 5.1

Monitoring Schedules for Reporting Month and Coming Reporting Month

Contract No. HK/2015/01
Wan Chai Development Phase II and Central-Wan Chai Bypass
Sampling, Field Measurement and Testing Works (Stage 3)
Environmental Monitoring Schedule
April 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			27-Mar Impact WQM Mid-flood 10:05 Mid-ebb 17:16	28-Mar	29-Mar Impact WQM Mid-ebb 7:53	30-Mar Impact WQM Mid-flood 8:27
31-Mar	1-Apr 24hr TSP (CMA3a, CMA4a) Noise (daytime) (M1a) Mid-flood 15:44 Mid-ebb 22:31	2-Apr 24hr TSP (CMA1b, CMA2a) 1hr TSP	3-Apr Mid-ebb 11:48 Mid-Flood 17:18	4-Apr Noise (daytime) (M4b, M5b, M6)	5-Apr	6-Apr 24hr TSP (CMA2a, CMA3a, CMA4a) Mid-flood 7:01 Mid-ebb 13:09
7-Apr	8-Apr 24hr TSP (CMA1b) 1hr TSP Mid-flood 7:54 Mid-ebb 15:17	9-Apr Noise (daytime) (M1a, M4b, M5b, M6)	10-Apr Mid-flood 8:42 Mid-ebb 15:30	11-Apr	12-Apr 24hr TSP Mid-flood 9:22 Mid-ebb 17:10	13-Apr 1hr TSP
14-Apr	15-Apr Mid-Flood 14:31 Mid-Ebb 21:26	16-Apr Noise (daytime) (M4b, M5b, M6)	17-Apr 24hr TSP (CMA1b, CMA2a, CMA3a) Noise (daytime) (M1a) Mid-Ebb 10:59 Mid-Flood 16:48	18-Apr 24hr TSP (CMA4a) 1hr TSP	19-Apr Mid-Ebb 12:17	20-Apr
21-Apr	22-Apr	23-Apr 24hr TSP Mid-Flood 8:19 Mid-Ebb 14:55	24-Apr 1hr TSP	25-Apr Mid-Flood 9:11 Mid-Ebb 16:39	26-Apr Noise (daytime) (M1a, M4b, M5b, M6)	

Remark:

Due to the hoisting of Amber Rainstorm Warning Signal, the water quality monitoring event scheduled on 19 April 2019 during flood tide was cancelled

Contract No. HK/2015/01
Wan Chai Development Phase II and Central-Wan Chai Bypass
Sampling, Field Measurement and Testing Works (Stage 3)
Tentative Environmental Monitoring Schedule
May 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
21-Apr	22-Apr	23-Apr 24hr TSP Noise (daytime) Mid-Flood 8:19 Mid-Ebb 14:55	24-Apr 1hr TSP Noise (daytime)	25-Apr Mid-Flood 9:11 Mid-Ebb 16:39	26-Apr	27-Apr Mid-Ebb 7:49 Mid-Flood 19:49
28-Apr	29-Apr 24hr TSP Noise (daytime)	30-Apr 1hr TSP Noise (daytime) Mid-Flood 15:10 Mid-Ebb 21:37	1-May	2-May Mid-Ebb 11:17 Mid-Flood 17:01	3-May	4-May 24hr TSP Mid-Flood 5:51 Mid-Ebb 12:11
5-May	6-May 1hr TSP Noise (daytime) Mid-Ebb 13:18 Mid-Flood 19:54	7-May Noise (daytime)	8-May Mid-Ebb 14:36 Mid-Flood 21:33	9-May	10-May 24hr TSP Mid-Flood 8:43 Mid-Ebb 16:15	11-May 1hr TSP
12-May	13-May	14-May Noise (daytime) Mid-Flood 14:30 Mid-Ebb 21:03	15-May Noise (daytime)	16-May 24hr TSP Mid-Ebb 10:37 Mid-Flood 16:43	17-May 1hr TSP	18-May Mid-Ebb 11:57 Mid-Flood 18:31
19-May	20-May Noise (daytime) Mid-ebb 13:15 Mid-Flood 20:12	21-May Noise (daytime)	22-May 24hr TSP Mid-Ebb 14:36 MidFlood 21:53	23-May 1hr TSP	24-May Mid-Ebb 8:23 Mid-Flood 16:05	25-May
26-May	27-May Noise (daytime)	28-May 24hr TSP Noise (daytime) Mid-ebb 19:45	29-May 1hr TSP Mid-Flood 3:18	30-May Mid-Ebb 10:12 Mid-Flood 15:40	31-May	1-Jun Mid-Ebb 11:11 Mid-Flood 17:30

Appendix 5.2

Noise Monitoring Results and Graphical Presentations

Noise Monitoring Result

Day Time (0700 - 1900hrs on normal weekdays)

Location: M1a - Footbridge at EX-Wanchai Harbour Road Sports Centre

Date	Time	Weather	Measurement Noise Level			Baseline Level	Construction Noise Level	Limit Level
			Leq	L10	L90	Leq	Leq	Leq
			Unit: dB(A), (30-min)					
1/4/19	14:15	Fine	72.4	74.0	68.0	72	59	75
9/4/19	16:50	Fine	71.9	75.5	67.4	72	72	75
17/4/19	11:30	Fine	71.4	73.5	65.8	72	71	75
26/4/19	15:30	Fine	70.2	72.5	66.4	72	70	75

Noise Monitoring Result

Day Time (0700 - 1900hrs on normal weekdays)

Location: M4b - Victoria Centre

Date	Time	Weather	Measurement Noise Level			Baseline Noise Level	Construction Noise Level	Limit Level
			Leq	L10	L90	Leq	Leq	Leq
			Unit: dB(A), (30min)					
4/4/19	08:06	Cloudy	64.3	66.0	61.0	67	64	75
9/4/19	8:13	Fine	66.5	68.4	61.5	67	67	75
16/4/19	8:35	Cloudy	66.4	67.5	64.0	67	66	75
26/4/19	11:20	Fine	67.2	68.8	65.7	67	67	75

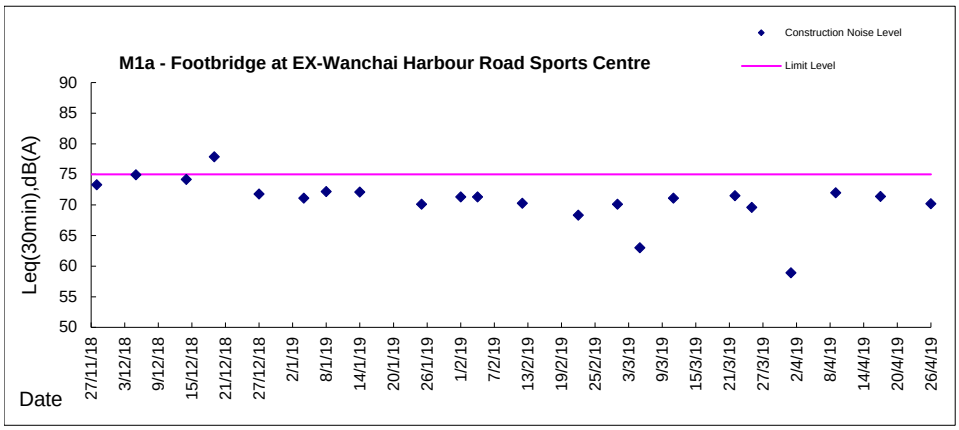
Location: M5b - City Garden

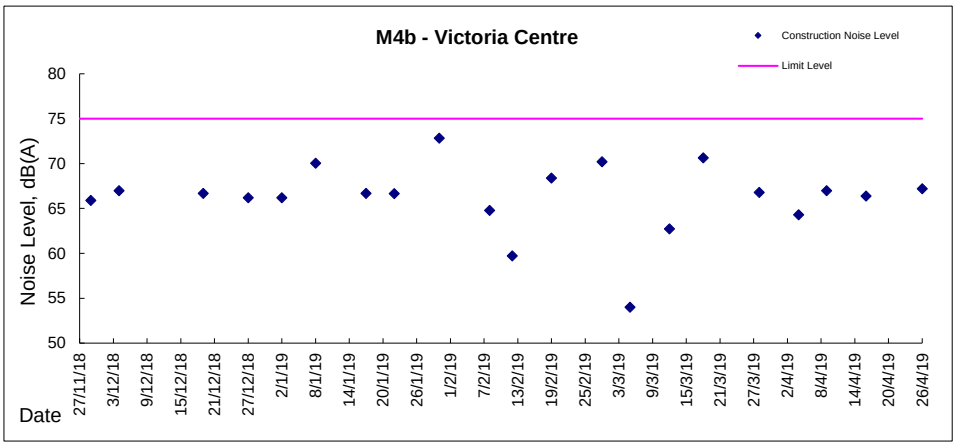
Date	Time	Weather	Measurement Noise Level			Baseline Level	Construction Noise Level	Limit Level
			Leq	L10	L90	Leq	Leq	Leq
			Unit: dB(A), (30min)					
4/4/19	9:20	Cloudy	68.5	69.5	66.5	68	59	75
9/4/19	9:43	Fine	68.9	70.3	66.5	68	62	75
16/4/19	10:10	Cloudy	68.2	69.0	66.5	68	55	75
26/4/19	13:10	Fine	69.5	71.5	65.5	68	64	75

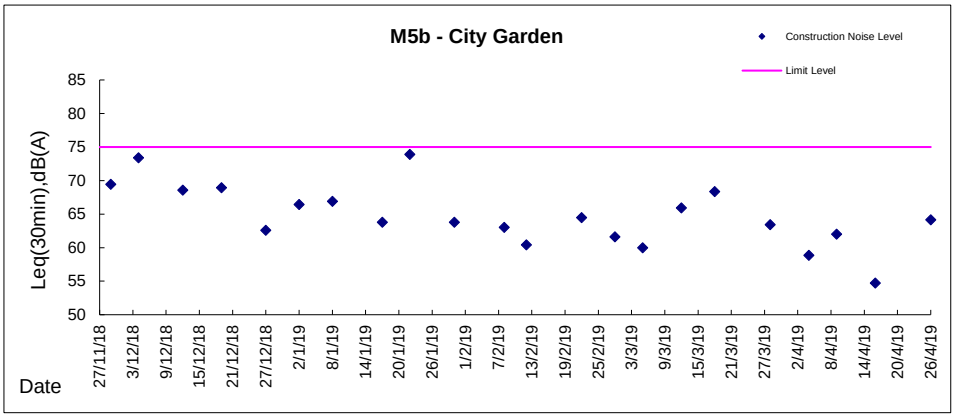
Location: M6 - HK Baptist Church Henrietta Secondary School

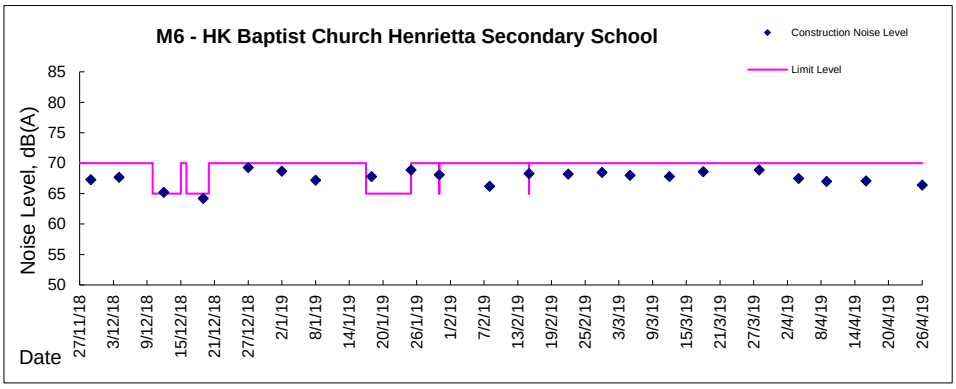
Date	Time	Weather	Measurement Noise Level			Baseline Level	Construction Noise Level	Limit Level
			Leq	L10	L90	Leq	Leq	Leq
			Unit: dB(A), (30-min)					
4/4/19	10:00	Cloudy	67.5	69.0	65.5	71	68	70
9/4/19	10:20	Fine	67.4	70.3	65.8	71	67	70
16/4/19	10:20	Cloudy	67.1	68.6	65.5	71	67	70
26/4/19	13:45	Fine	66.4	68.6	64.5	71	66	70

Graphic Presentation of Noise Monitoring Result
Day Time (0700 - 1900hrs on normal weekdays)









Appendix 5.3

Air Quality Monitoring Results and Graphical Presentations

Location: CMA1b - Harbour Grand Hotel Boundary Wall

Report on 24-hour TSP monitoring
Action Level (μ g/m3) - 176.7
Limit Level (μ g/m3) - 260

Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m^3/min			Total Volume, m^3	TSP Level, $\mu g/m^3$
				Initial	Final	Initial	Final		Initial, Q_{si}	Final, Q_{sf}	Average		
2-Apr-19	14:05	Cloudy	CMA1b_24hr 140947	2.6412	2.7107	13404.64	13428.64	24.00	1.23	1.22	1.22	1762	39.4
8-Apr-19	11:15	Cloudy	CMA1b_24hr 140939	2.6368	2.6767	13444.43	13468.43	24.00	1.32	1.32	1.32	1901	21.0
12-Apr-19	8:00	Rainy	CMA1b_24hr 140774	2.6571	2.6815	13469.93	13493.93	24.00	1.22	1.22	1.22	1757	13.9
17-Apr-19	8:00	Cloudy	CMA1b_24hr 140930	2.6526	2.6940	13499.80	13523.80	24.00	1.22	1.22	1.22	1752	23.6
23-Apr-19	8:00	Fine	CMA1b_24hr 141147	2.6765	2.7083	13532.04	13556.04	24.00	1.19	1.19	1.19	1720	18.5

Remarks: Due to interruption of electricity, the 24hr TSP was rescheduled from 1 and 6 April 2019 to 2 and 8 April 2019 respectively.

Report on 1-hour TSP monitoring
Action Level (μ g/m3) - 320.1
Limit Level (μ g/m3) - 500

Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m^3/min			Total Volume, m^3	TSP Level, $\mu g/m^3$
				Initial	Final	Initial	Final		Initial, Q_{si}	Final, Q_{sf}	Average		
2-Apr-19	9:15	Cloudy	CMA1b_1hr_1 140839	2.6488	2.6515	13401.64	13402.64	1.00	1.23	1.23	1.23	74	36.7
2-Apr-19	10:50	Cloudy	CMA1b_1hr_2 140848	2.6540	2.6550	13402.64	13403.64	1.00	1.23	1.23	1.23	74	13.6
2-Apr-19	13:00	Cloudy	CMA1b_1hr_3 140948	2.6378	2.6381	13403.64	13404.64	1.00	1.23	1.23	1.23	74	4.1
8-Apr-19	8:03	Cloudy	CMA1b_1hr_1 140800	2.6500	2.6527	13441.43	13442.43	1.00	1.21	1.21	1.21	73	37.1
8-Apr-19	9:07	Cloudy	CMA1b_1hr_2 140798	2.6600	2.6623	13442.43	13443.43	1.00	1.21	1.21	1.21	73	31.6
8-Apr-19	10:09	Cloudy	CMA1b_1hr_3 140795	2.6574	2.6589	13443.43	13444.43	1.00	1.21	1.21	1.21	73	20.6
13-Apr-19	8:10	Cloudy	CMA1b_1hr_1 140924	2.6452	2.6477	13493.93	13494.93	1.00	1.22	1.22	1.22	73	34.2
13-Apr-19	9:15	Cloudy	CMA1b_1hr_2 140926	2.6435	2.6435	13494.93	13495.93	1.00	1.22	1.22	1.22	73	<0.1
13-Apr-19	10:20	Cloudy	CMA1b_1hr_3 140928	2.6576	2.6576	13495.93	13496.93	1.00	1.22	1.22	1.22	73	<0.1
18-Apr-19	8:05	Cloudy	CMA1b_1hr_1 140986	2.7450	2.7450	13523.80	13524.80	1.00	1.22	1.22	1.22	73	<0.1
18-Apr-19	9:07	Cloudy	CMA1b_1hr_2 140987	2.7707	2.7707	13524.80	13525.80	1.00	1.22	1.22	1.22	73	<0.1
18-Apr-19	10:09	Cloudy	CMA1b_1hr_3 140988	2.7491	2.7491	13525.80	13526.80	1.00	1.22	1.22	1.22	73	<0.1
24-Apr-19	14:00	Fine	CMA1b_1hr_1 140775	2.6506	2.6540	13556.04	13557.04	1.00	1.19	1.19	1.19	72	47.4
24-Apr-19	15:05	Fine	CMA1b_1hr_2 141018	2.7386	2.7386	13557.04	13558.04	1.00	1.19	1.19	1.19	72	<0.1
24-Apr-19	16:10	Fine	CMA1b_1hr_3 141021	2.7427	2.7440	13558.04	13559.04	1.00	1.19	1.19	1.19	72	18.1

Location: CMA2a - Causeway Bay Community Centre

Report on 24-hour TSP monitoring
Action Level (μg/m3) - 169.5
Limit Level (μg/m3) - 260

Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m^3/min			Total Volume, m^3	TSP Level, $\mu g/m^3$
				Initial	Final	Initial	Final		Initial, Q_{si}	Final, Q_{sf}	Average		
2-Apr-19	12:45	Cloudy	CMA2a_24hr 140949	2.6380	2.7149	3.15	27.15	24.00	1.35	1.34	1.35	1939	39.7
6-Apr-19	8:00	Cloudy	CMA2a_24hr 140922	2.6442	2.8170	27.15	51.15	24.00	1.89	1.89	1.89	2716	63.6
12-Apr-19	8:00	Rainy	CMA2a_24hr 140932	2.6260	2.6963	54.15	78.15	24.00	1.79	1.79	1.79	2583	27.2
17-Apr-19	8:00	Cloudy	CMA2a_24hr 140972	2.7504	2.8453	81.15	105.15	24.00	1.34	1.34	1.34	1930	49.2
23-Apr-19	8:00	Fine	CMA2a_24hr 141148	2.6687	2.7551	108.43	132.43	24.00	1.33	1.33	1.33	1918	45.1

Remarks: Due to interruption of electricity, the 24hr TSP was rescheduled from 1 April 2019 to 2 April 2019.

Report on 1-hour TSP monitoring
Action Level (μg/m3) - 323.4
Limit Level (μg/m3) - 500

Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m^3/min			Total Volume, m^3	TSP Level, $\mu g/m^3$
				Initial	Final	Initial	Final		Initial, Q_{si}	Final, Q_{sf}	Average		
2-Apr-19	8:00	Cloudy	CMA2a_1hr_1 140886	2.6289	2.6372	0.15	1.15	1.00	1.35	1.35	1.35	81	102.6
2-Apr-19	9:25	Cloudy	CMA2a_1hr_2 140838	2.6464	2.6503	1.15	2.15	1.00	1.35	1.35	1.35	81	48.2
2-Apr-19	10:55	Cloudy	CMA2a_1hr_3 140849	2.6326	2.6362	2.15	3.15	1.00	1.35	1.35	1.35	81	44.5
8-Apr-19	8:10	Cloudy	CMA2a_1hr_1 140799	2.6612	2.6872	51.15	52.15	1.00	1.88	1.88	1.88	113	230.2
8-Apr-19	9:15	Cloudy	CMA2a_1hr_2 140797	2.6580	2.6657	52.15	53.15	1.00	1.88	1.88	1.88	113	68.2
8-Apr-19	10:20	Cloudy	CMA2a_1hr_3 140796	2.6573	2.6633	53.15	54.15	1.00	1.88	1.88	1.88	113	53.1
13-Apr-19	8:05	Cloudy	CMA2a_1hr_1 140925	2.6531	2.6543	78.15	79.15	1.00	1.79	1.79	1.79	108	11.1
13-Apr-19	9:07	Cloudy	CMA2a_1hr_2 140927	2.6482	2.6547	79.15	80.15	1.00	1.79	1.79	1.79	108	60.4
13-Apr-19	10:09	Cloudy	CMA2a_1hr_3 140929	2.6376	2.6399	80.15	81.15	1.00	1.79	1.79	1.79	108	21.4
18-Apr-19	8:08	Cloudy	CMA2a_1hr_1 140989	2.7395	2.7412	105.15	106.15	1.00	1.34	1.34	1.34	80	21.2
18-Apr-19	9:10	Cloudy	CMA2a_1hr_2 140990	2.7566	2.7566	106.15	107.15	1.00	1.34	1.34	1.34	80	<0.1
18-Apr-19	10:12	Cloudy	CMA2a_1hr_3 140991	2.7839	2.7861	107.15	108.15	1.00	1.34	1.34	1.34	80	27.4
24-Apr-19	14:00	Fine	CMA2a_1hr_1 141014	2.7796	2.7850	132.43	133.43	1.00	1.33	1.33	1.33	80	67.6
24-Apr-19	15:10	Fine	CMA2a_1hr_2 141019	2.7704	2.7745	133.43	134.43	1.00	1.33	1.33	1.33	80	51.3
24-Apr-19	16:15	Fine	CMA2a_1hr_3 141022	2.7349	2.7415	134.43	135.43	1.00	1.33	1.33	1.33	80	82.6

Location: CMA3a - CWB PRE Site Office Area

Report on 24-hour TSP monitoring
Action Level (μg/m3) - 171
Limit Level (μg/m3) - 260

Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m^3/min			Total Volume, m^3	TSP Level, $\mu g/m^3$
				Initial	Final	Initial	Final		Initial, Q_{si}	Final, Q_{sf}	Average		
1-Apr-19	8:00	Cloudy	CMA3a_24hr 140850	2.6516	2.7515	10390.29	10414.29	24.00	1.01	1.01	1.01	1450	68.9
6-Apr-19	8:00	Cloudy	CMA3a_24hr 140918	2.6163	2.6943	10417.29	10441.29	24.00	0.99	0.99	0.99	1431	54.5
12-Apr-19	8:00	Rainy	CMA3a_24hr 140931	2.6514	2.6956	10444.29	10468.29	24.00	1.00	1.00	1.00	1440	30.7
17-Apr-19	8:00	Cloudy	CMA3a_24hr 140969	2.7396	2.7888	10471.29	10495.29	24.00	1.00	0.99	1.00	1434	34.3
23-Apr-19	8:00	Fine	CMA3a_24hr 141149	2.6591	2.7016	10498.30	10522.30	24.00	1.07	1.07	1.07	1537	27.6

Report on 1-hour TSP monitoring
Action Level (μg/m3) - 311.3
Limit Level (μg/m3) - 500

Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m^3/min			Total Volume, m^3	TSP Level, $\mu g/m^3$
				Initial	Final	Initial	Final		Initial, Q_{si}	Final, Q_{sf}	Average		
2-Apr-19	9:09	Cloudy	CMA3a_1hr_1 140836	2.6484	2.6490	10414.29	10415.29	1.00	1.01	1.01	1.01	60	9.9
2-Apr-19	10:30	Cloudy	CMA3a_1hr_2 140846	2.6543	2.6562	10415.29	10416.29	1.00	1.01	1.01	1.01	60	31.5
2-Apr-19	13:00	Cloudy	CMA3a_1hr_3 140915	2.6484	2.6504	10416.29	10417.29	1.00	1.01	1.01	1.01	60	33.1
8-Apr-19	13:00	Cloudy	CMA3a_1hr_1 140794	2.6644	2.6661	10441.29	10442.29	1.00	1.12	1.12	1.12	67	25.3
8-Apr-19	14:16	Cloudy	CMA3a_1hr_2 140937	2.6571	2.6573	10442.29	10443.29	1.00	1.12	1.12	1.12	67	3.0
8-Apr-19	15:20	Cloudy	CMA3a_1hr_3 140783	2.6575	2.6626	10443.29	10444.29	1.00	1.12	1.12	1.12	67	76.0
13-Apr-19	8:05	Cloudy	CMA3a_1hr_1 140952	2.7595	2.7595	10468.29	10469.29	1.00	1.00	1.00	1.00	60	<0.1
13-Apr-19	9:15	Cloudy	CMA3a_1hr_2 140777	2.6521	2.6533	10469.29	10470.29	1.00	1.00	1.00	1.00	60	20.0
13-Apr-19	10:17	Cloudy	CMA3a_1hr_3 140959	2.7653	2.7707	10470.29	10471.29	1.00	1.00	1.00	1.00	60	90.0
18-Apr-19	13:00	Cloudy	CMA3a_1hr_1 141156	2.6885	2.6919	10495.29	10496.29	1.00	0.99	0.99	0.99	60	57.0
18-Apr-19	14:04	Cloudy	CMA3a_1hr_2 140966	2.7811	2.7841	10496.29	10497.29	1.00	0.99	0.99	0.99	60	50.3
18-Apr-19	15:07	Cloudy	CMA3a_1hr_3 141158	2.7002	2.7054	10497.29	10498.29	1.00	0.99	0.99	0.99	60	87.1
24-Apr-19	14:20	Fine	CMA3a_1hr_1 141034	2.7560	2.7578	10522.30	10523.30	1.00	1.07	1.07	1.07	64	28.1
24-Apr-19	15:30	Fine	CMA3a_1hr_2 141032	2.7326	2.7364	10523.30	10524.30	1.00	1.07	1.07	1.07	64	59.3
24-Apr-19	16:40	Fine	CMA3a_1hr_3 141030	2.7482	2.7503	10524.30	10525.30	1.00	1.07	1.07	1.07	64	32.8

Location: CMA4a - SPCA

Report on 24-hour TSP monitoring

Action Level (μg/m3) - 171.2

Limit Level (μg/m3) - 260

Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m^3/min			Total Volume, m^3	TSP Level, $\mu g/m^3$
				Initial	Final	Initial	Final		Initial, Q_{si}	Final, Q_{sf}	Average		
1-Apr-19	8:00	Cloudy	CMA4a_24hr 140907	2.6313	2.7642	27208.29	27232.29	24.00	1.27	1.27	1.27	1831	72.6
6-Apr-19	8:00	Cloudy	CMA4a_24hr 140917	2.6215	2.7122	27235.29	27259.29	24.00	1.21	1.21	1.21	1748	51.9
12-Apr-19	8:00	Rainy	CMA4a_24hr 140933	2.6232	2.6802	27262.29	27286.29	24.00	1.27	1.27	1.27	1823	31.3
18-Apr-19	16:10	Cloudy	CMA4a_24hr 141160	2.6940	2.7504	27398.75	27422.75	24.00	1.26	1.26	1.26	1818	31.0
23-Apr-19	8:00	Fine	CMA4a_24hr 141150	2.6798	2.7567	27422.75	27446.75	24.00	1.33	1.33	1.33	1922	40.0

Remarks: Due to interruption of electricity, the 24hr TSP was rescheduled from 17 April 2019 to 18 April 2019.

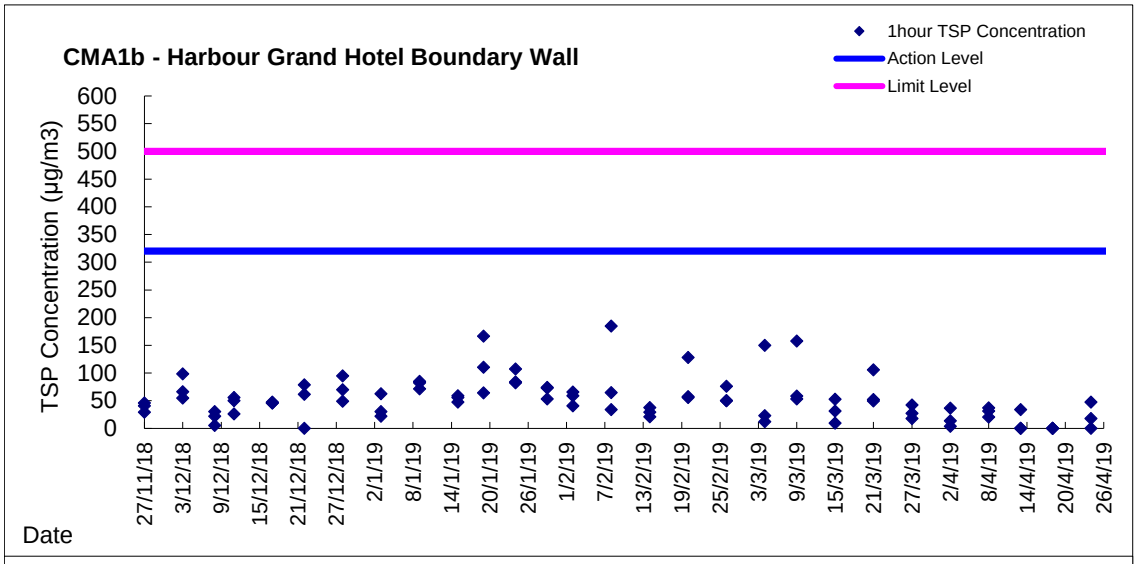
Report on 1-hour TSP monitoring

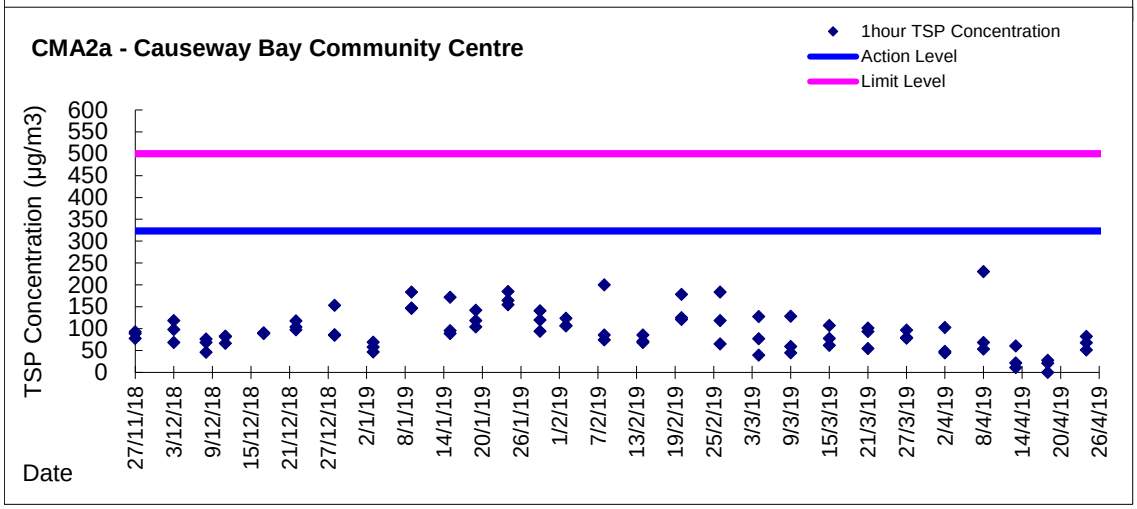
Action Level (μg/m3) - 312.5

Limit Level (μg/m3) - 500

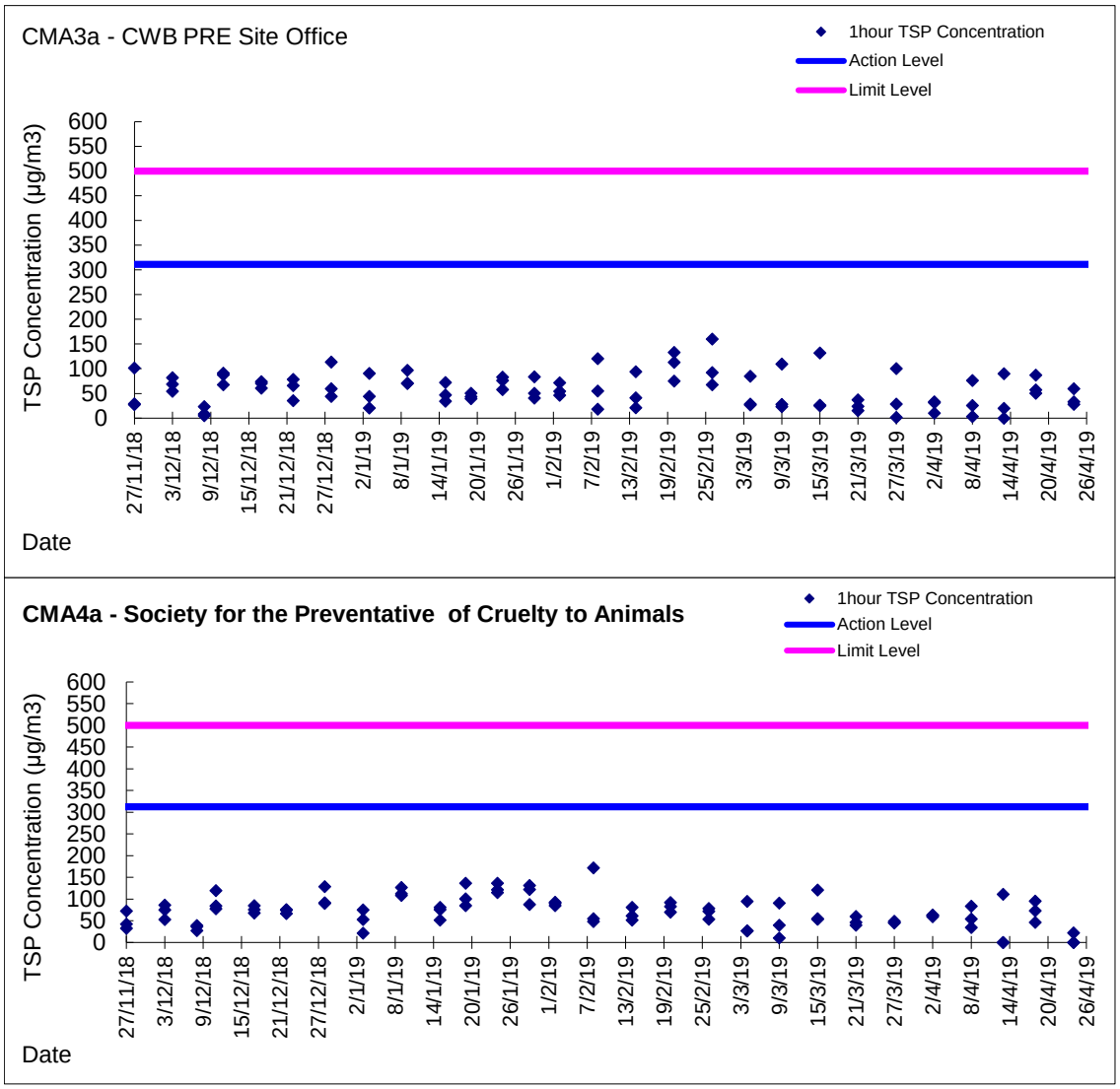
Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m^3/min			Total Volume, m^3	TSP Level, $\mu g/m^3$
				Initial	Final	Initial	Final		Initial, Q_{si}	Final, Q_{sf}	Average		
2-Apr-19	8:55	Cloudy	CMA4a_1hr_1 140835	2.6300	2.6348	27232.29	27233.29	1.00	1.27	1.27	1.27	76	62.9
2-Apr-19	10:50	Cloudy	CMA4a_1hr_2 140845	2.6543	2.6588	27233.29	27234.29	1.00	1.27	1.27	1.27	76	59.0
2-Apr-19	13:00	Cloudy	CMA4a_1hr_3 140914	2.6447	2.6494	27234.29	27235.29	1.00	1.27	1.27	1.27	76	61.6
8-Apr-19	13:00	Cloudy	CMA4a_1hr_1 140793	2.6534	2.6560	27259.29	27260.29	1.00	1.26	1.26	1.26	76	34.4
8-Apr-19	14:05	Cloudy	CMA4a_1hr_2 140792	2.6489	2.6530	27260.29	27261.29	1.00	1.26	1.26	1.26	76	54.3
8-Apr-19	15:08	Cloudy	CMA4a_1hr_3 140790	2.6467	2.6530	27261.29	27262.29	1.00	1.26	1.26	1.26	76	83.4
13-Apr-19	8:03	Cloudy	CMA4a_1hr_1 140951	2.7837	2.7837	27286.29	27287.29	1.00	1.17	1.17	1.17	70	<0.1
13-Apr-19	9:13	Cloudy	CMA4a_1hr_2 140958	2.7722	2.7722	27287.29	27288.29	1.00	1.17	1.17	1.17	70	<0.1
13-Apr-19	10:18	Cloudy	CMA4a_1hr_3 140995	2.7740	2.7818	27288.29	27289.29	1.00	1.17	1.17	1.17	70	111.1
18-Apr-19	13:00	Cloudy	CMA4a_1hr_1 141155	2.6990	2.7062	27395.75	27396.75	1.00	1.26	1.26	1.26	76	95.1
18-Apr-19	14:02	Cloudy	CMA4a_1hr_2 141157	2.6802	2.6857	27396.75	27397.75	1.00	1.26	1.26	1.26	76	72.6
18-Apr-19	15:04	Cloudy	CMA4a_1hr_3 141159	2.7005	2.7040	27397.75	27398.75	1.00	1.26	1.26	1.26	76	46.2
24-Apr-19	14:30	Fine	CMA4a_1hr_1 141033	2.7299	2.7316	27446.75	27447.75	1.00	1.28	1.28	1.28	77	22.1
24-Apr-19	15:45	Fine	CMA4a_1hr_2 141031	2.7348	2.7348	27447.75	27448.75	1.00	1.33	1.33	1.33	80	<0.1
24-Apr-19	16:56	Fine	CMA4a_1hr_3 141029	2.7506	2.7506	27448.75	27449.75	1.00	1.33	1.33	1.33	80	<0.1

Graphic Presentation of 1 hour TSP Result

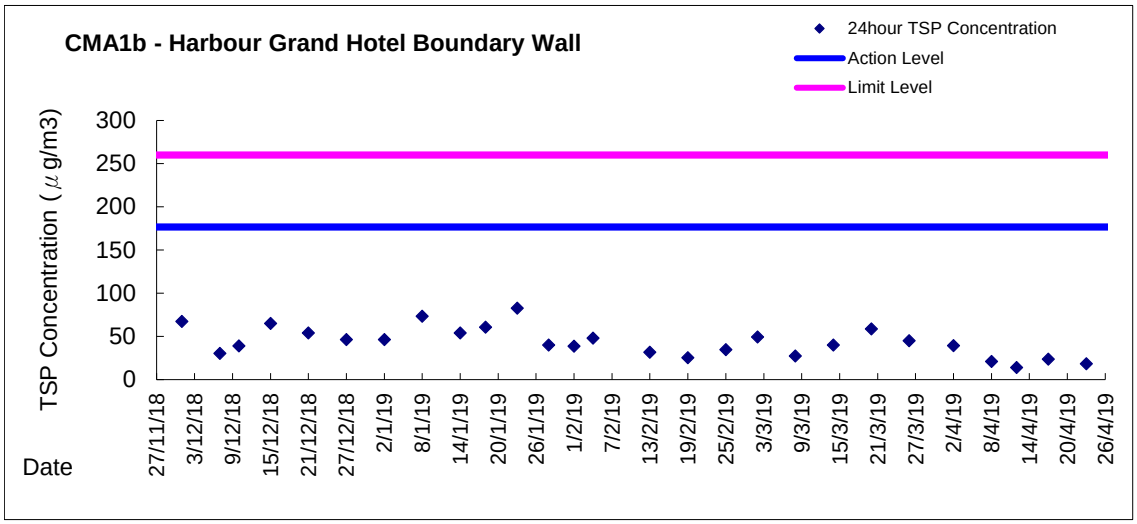


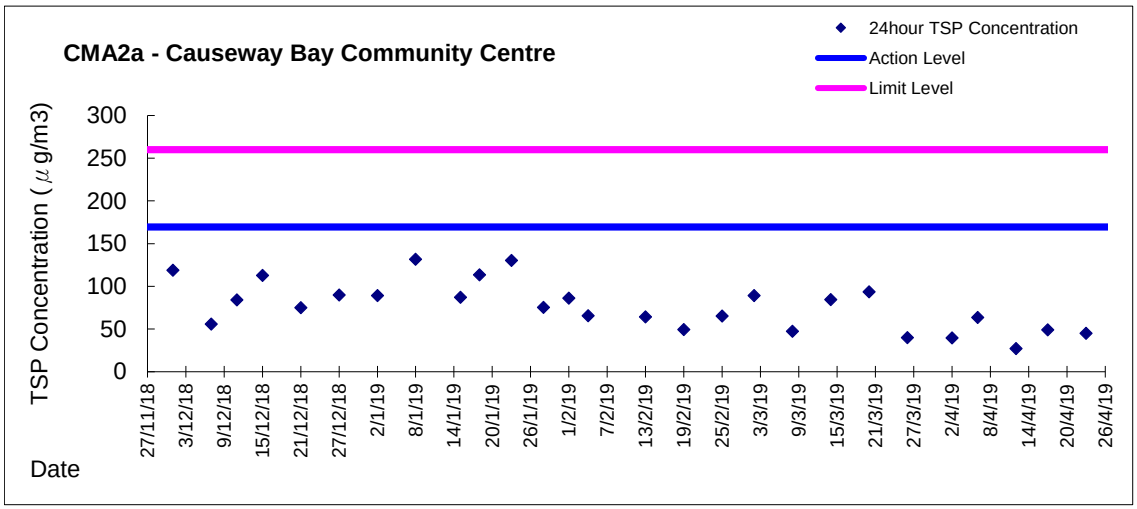


Graphic Presentation of 1 hour TSP Result

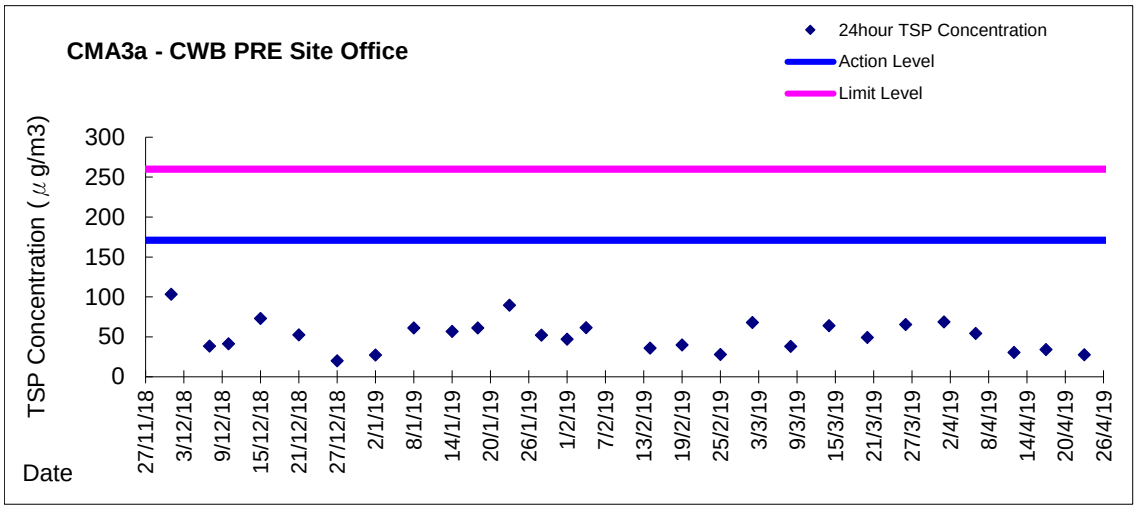


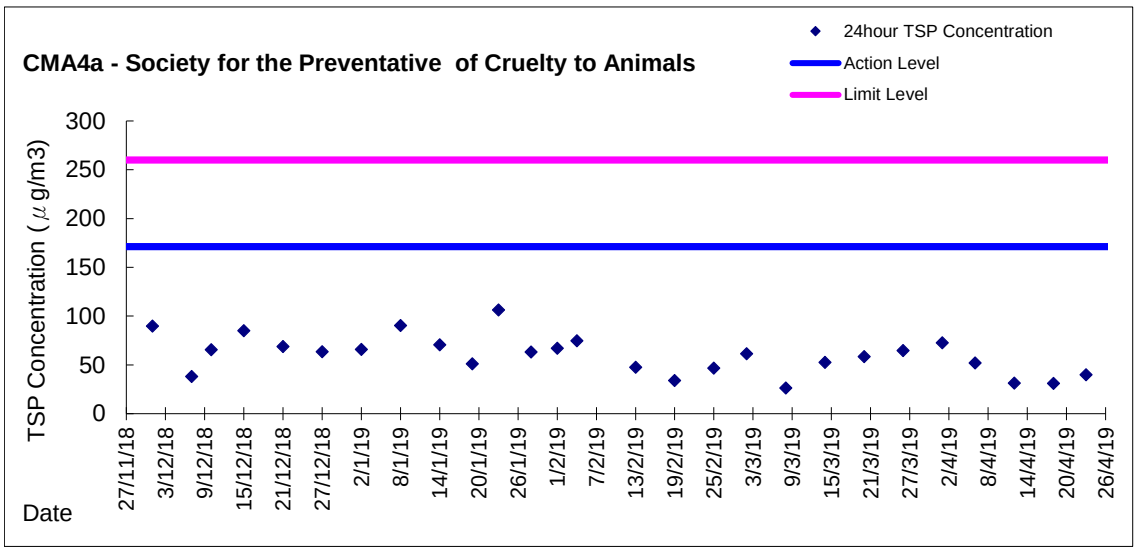
Graphic Presentation of 24 hour TSP Result





Graphic Presentation of 24 hour TSP Result





Appendix 5.4

Water Quality Monitoring Results and Graphical Presentations

Water Monitoring Result at C1 - HKCEC Extension
Mid-Flood Tide

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO			Turbidity			Suspended Solids	
			m		°C			-			ppt			%			mg/L			NTU			mg/L	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
27/3/19	11:25	Fine	Middle	3.0	22.20	22.20	22.25	7.66	7.66	7.66	33.28	33.28	33.28	99.2	99.2	98.5	7.11	7.11	7.06	3.42	3.41	3.43	2	2.50
	11:27		Middle	3.0	22.30	22.30		7.65	7.65		33.28	33.28		97.6	98.0		6.99	7.02		3.43	3.44		3	
30/3/19	9:00	Fine	Middle	3.0	22.60	22.60	22.65	7.76	7.76	7.78	32.87	32.87	32.87	94.0	93.9	93.7	6.71	6.70	6.69	1.25	1.25	1.25	<2	<2
	9:02		Middle	3.0	22.70	22.70		7.80	7.80		32.87	32.87		93.7	93.1		6.69	6.65		1.25	1.26		<2	

Remarks:
Single underline denotes exceedance over Action Level.
Double underline denotes exceedance over Limit Level.

Water Monitoring Result at RW21-P789 - GEC/CRB/SHK
Mid-Flood Tide

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO			Turbidity			Suspended Solids	
			m		°C			-			ppt			%			mg/L			NTU			mg/L	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
27/3/19	9:50	Fine	Middle	4.0	22.40	22.40	22.45	7.34	7.34	7.33	32.56	32.56	32.56	99.2	97.7	97.2	7.12	7.00	6.95	2.14	2.15	2.14	2	2.50
	9:52		Middle	4.0	22.50	22.50		7.32	7.32		32.55	32.55		95.8	96.0		6.81	6.87		2.14	2.13		3	
30/3/19	8:05	Fine	Middle	4.0	22.50	22.50	22.55	7.79	7.79	7.80	32.86	32.86	32.85	95.7	96.1	94.2	6.85	6.87	6.73	2.40	2.43	2.43	3	3.00
	8:07		Middle	4.0	22.60	22.60		7.80	7.80		32.84	32.84		92.7	92.1		6.62	6.58		2.44	2.44		3	

Remarks:
Single underline denotes exceedance over Action Level.
Double underline denotes exceedance over Limit Level.

Water Monitoring Result at C1 - HKCEC Extension
Mid-Flood Tide

Date	Time	Weater Condition	Sampling Depth (m)		Water Temperature (°C)			pH (-)			Salinity (ppt)			DO Saturation (%)			DO (mg/L)			Turbidity (NTU)			Suspended Solids (mg/L)	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
1/4/19	14:00	Cloudy	Middle	2.5	22.00	22.00	22.00	7.48	7.48	7.48	32.76	32.76	32.77	101.1	100.9	100.0	7.30	7.29	7.22	2.69	2.69	2.68	2	2.50
	14:02		Middle	2.5	22.00	22.00		7.48	7.48		32.77	32.77		99.7	98.4		7.20	7.10		2.69	2.66		3	
3/4/19	15:00	Fine	Middle	2.5	23.80	23.80	23.90	7.62	7.62	7.64	33.96	33.96	33.96	94.1	94.5	93.8	6.53	6.55	6.50	3.53	3.44	3.49	3	3.00
	15:02		Middle	2.5	24.00	24.00		7.66	7.66		33.96	33.96		93.5	92.9		6.48	6.43		3.50	3.48		3	
6/4/19	6:40	Foggy	Middle	3.5	22.60	22.60	22.60	8.28	8.28	8.28	31.51	31.51	31.51	74.2	74.6	75.1	5.34	5.37	5.40	4.73	4.62	4.54	2	2.50
	6:41		Middle	3.5	22.60	22.60		8.28	8.28		31.51	31.51		75.3	76.1		5.42	5.48		4.42	4.37		3	
8/4/19	8:15	Cloudy	Middle	2.5	24.00	24.00	24.00	8.26	8.26	8.26	30.60	30.60	30.60	84.8	82.1	81.9	5.99	5.77	5.77	2.18	2.16	2.19	<2	2.00
	8:16		Middle	2.5	24.00	24.00		8.26	8.26		30.60	30.60		80.6	80.0		5.68	5.64		2.20	2.23		2	
10/4/19	8:55	Fine	Middle	3.0	24.20	24.20	24.30	8.15	8.15	8.15	31.59	31.59	31.59	91.1	91.8	91.0	6.37	6.42	6.36	1.06	1.07	1.06	2	2.00
	8:57		Middle	3.0	24.40	24.40		8.15	8.15		31.58	31.58		91.3	89.9		6.38	6.27		1.06	1.06		2	
12/4/19	9:40	Cloudy	Middle	3.0	24.00	24.00	24.00	7.44	7.44	7.45	31.58	31.58	31.59	91.0	91.0	90.8	6.47	6.47	6.41	1.09	1.08	1.06	3	3.50
	9:42		Middle	3.0	24.00	24.00		7.46	7.46		31.59	31.59		90.5	90.6		6.35	6.36		1.03	1.02		4	
15/4/19	14:05	Cloudy	Middle	3.0	23.20	23.20	23.20	7.41	7.41	7.42	32.73	32.73	32.73	91.5	91.3	91.0	6.48	6.46	6.44	2.40	2.39	2.40	6	6.50
	14:07		Middle	3.0	23.20	23.20		7.43	7.43		32.73	32.73		90.6	90.4		6.41	6.40		2.39	2.40		7	
17/4/19	17:00	Fine	Middle	3.0	24.30	24.30	24.40	7.54	7.56	7.56	32.02	32.02	32.02	91.7	90.0	89.0	6.38	6.19	6.17	3.58	3.59	3.56	2	2.50
	17:02		Middle	3.0	24.50	24.50		7.56	7.56		32.01	32.01		87.2	87.0		6.06	6.04		3.53	3.53		3	
19/4/19	-	Amber Rainstorm Warning	Middle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-		Middle	-	-	-		-	-		-	-		-	-		-	-		-	-		-	
23/4/19	8:15	Fine	Middle	3.0	24.50	24.50	24.53	7.50	7.50	7.51	30.84	30.84	30.84	87.7	87.8	84.8	5.71	5.71	5.71	4.61	4.61	4.61	6	6.50
	8:17		Middle	3.0	24.50	24.60		7.52	7.52		30.84	30.84		81.9	81.8		5.72	5.71		4.62	4.61		7	
25/4/19	9:15	Fine	Middle	3.0	25.80	25.80	25.80	7.46	7.46	7.47	29.01	29.01	29.01	95.1	95.2	94.4	6.57	6.58	6.51	1.53	1.52	1.53	2	2.50
	9:17		Middle	3.0	25.80	25.80		7.48	7.48		29.01	29.01		93.5	93.6		6.45	6.45		1.52	1.53		3	

Remarks:
Single underline denotes exceedance over Action Level.
Double underline denotes exceedance over Limit Level.

Water Monitoring Result at RW21-P789 - GEC/CRB/SHK
Mid-Flood Tide

Date	Time	Weater Condition	Sampling Depth (m)		Water Temperature (°C)			pH (-)			Salinity (ppt)			DO Saturation (%)			DO (mg/L)			Turbidity (NTU)			Suspended Solids (mg/L)	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
1/4/19	14:25	Cloudy	Middle	3.5	22.20	22.20	22.20	7.74	7.74	7.75	33.88	33.88	33.88	96.4	95.7	94.8	6.89	6.84	6.78	3.81	3.83	3.84	4	4.50
	14:27		Middle	3.5	22.20	22.20		7.75	7.75		33.88	33.88		93.4	93.8		6.68	6.70		3.85	3.85		5	
3/4/19	15:30	Fine	Middle	3.5	23.30	23.30	23.35	7.79	7.79	7.80	33.97	33.97	33.97	93.2	92.9	92.6	6.53	6.51	6.47	5.32	5.31	5.31	5	5.00
	15:32		Middle	3.5	23.40	23.40		7.81	7.81		33.97	33.97		92.1	92.0		6.45	6.37		5.31	5.31		5	
6/4/19	7:30	Foggy	Middle	3.5	22.60	22.60	22.60	8.35	8.35	8.35	31.90	31.90	31.90	79.3	80.1	80.1	5.69	5.76	5.75	3.30	3.11	3.13	2	2.50
	7:31		Middle	3.5	22.60	22.60		8.35	8.35		31.90	31.90		80.5	80.5		5.78	5.78		3.09	3.03		3	
8/4/19	5:35	Cloudy	Middle	3.5	23.80	23.80	23.80	8.29	8.29	8.29	30.71	30.71	30.71	75.2	75.4	75.4	5.32	5.33	5.33	2.56	2.45	2.42	<2	<2
	5:36		Middle	3.5	23.80	23.80		8.29	8.29		30.71	30.71		75.3	75.7		5.32	5.35		2.38	2.27		<2	
10/4/19	9:15	Fine	Middle	3.0	24.20	24.20	24.30	8.13	8.13	8.13	31.37	31.37	31.36	81.6	81.7	81.8	5.99	5.99	5.86	1.33	1.33	1.32	2	2.00
	9:17		Middle	3.0	24.40	24.40		8.13	8.13		31.35	31.35		82.8	80.9		5.79	5.66		1.31	1.30		2	
12/4/19	10:05	Cloudy	Middle	4.0	23.50	23.50	23.50	7.50	7.50	7.51	31.07	31.07	31.07	87.3	87.7	87.6	6.18	6.22	6.20	1.07	1.07	1.08	4	4.50
	10:07		Middle	4.0	23.50	23.50		7.52	7.52		31.06	31.06		87.5	87.7		6.20	6.21		1.09	1.09		5	
15/4/19	14:50	Cloudy	Middle	4.0	22.90	22.90	22.90	7.54	7.54	7.56	32.00	32.00	32.00	91.9	92.3	92.2	6.54	6.56	6.55	2.28	2.29	2.29	5	5.00
	14:52		Middle	4.0	22.90	22.90		7.57	7.57		32.00	32.00		92.3	92.4		6.56	6.52		2.30	2.30		5	
17/4/19	16:00	Fine	Middle	4.0	23.90	23.90	23.90	7.60	7.60	7.61	32.01	32.01	32.01	85.7	85.7	85.9	6.01	6.01	6.02	3.13	3.16	3.16	3	3.00
	16:02		Middle	4.0	23.90	23.90		7.61	7.61		32.01	32.01		86.0	86.0		6.03	6.02		3.17	3.18		3	
19/4/19	-	Amber Rainstorm Warning	Middle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-		Middle	-	-	-		-	-		-	-		-	-		-	-		-	-		-	
23/4/19	8:35	Fine	Middle	4.0	24.50	24.50	24.55	7.54	7.54	7.55	30.40	30.40	30.40	82.5	82.6	82.8	5.78	5.79	5.80	3.12	3.13	3.13	6	6.00
	8:37		Middle	4.0	24.60	24.60		7.56	7.56		30.40	30.40		83.0	83.1		5.81	5.82		3.13	3.13		6	
25/4/19	9:50	Fine	Middle	4.0	25.10	25.10	25.20	7.48	7.48	7.49	30.21	30.21	30.21	86.3	86.6	86.3	5.98	6.00	5.98	4.17	4.18	4.18	4	4.50
	9:52		Middle	4.0	25.30	25.30		7.50	7.50		30.21	30.21		86.1	86.1		5.96	5.96		4.19	4.19		5	

Remarks:
Single underline denotes exceedance over Action Level.
Double underline denotes exceedance over Limit Level.

Water Monitoring Result at C1 - HKCEC
Mid-Ebb Tide

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO			Turbidity			Suspended Solids	
			m		°C			-			ppt			%			mg/L			NTU			mg/L	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
27/3/19	17:25	Fine	Middle	2.5	25.20	25.20	25.25	7.58	7.58	7.61	33.56	33.56	33.56	97.2	96.6	96.7	6.84	6.80	6.80	4.60	4.53	4.58	3	3.00
	17:27		Middle	2.5	25.30	25.30		7.64	7.64		33.56	33.56		96.3	96.5		6.77	6.77		4.59	4.58		3	
29/3/19	8:18	Cloudy	Middle	3.0	22.60	22.60	22.60	8.10	8.10	8.10	31.83	31.83	31.83	79.4	79.7	80.2	5.71	5.73	5.76	2.87	2.90	2.87	<2	<2
	8:19		Middle	3.0	22.60	22.60		8.10	8.10		31.83	31.83		80.9	80.8		5.80	5.80		2.92	2.80		<2	

Remarks:
Single underline denotes exceedance over Action Level.
Double underline denotes exceedance over Limit Level.

Water Monitoring Result at RW21-P789 - GEC/CRB/SHK
Mid-Ebb Tide

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO			Turbidity			Suspended Solids	
			m		°C			-			ppt			%			mg/L			NTU			mg/L	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
27/3/19	16:55	Fine	Middle	3.5	22.20	22.20	22.25	7.64	7.64	7.65	33.54	33.54	33.54	91.7	91.8	91.7	6.56	6.56	6.55	4.78	4.80	4.83	4	4.00
	16:57		Middle	3.5	22.30	22.30		7.65	7.65		33.54	33.54		91.6	91.6		6.55	6.54		4.86	4.86		4	
29/3/19	6:07	Cloudy	Middle	4.0	22.50	22.50	22.50	8.03	8.03	8.03	31.25	31.25	31.25	76.4	75.8	76.0	5.52	5.47	5.49	1.97	2.02	1.98	<2	<2
	6:08		Middle	4.0	22.50	22.50		8.03	8.03		31.25	31.25		76.0	75.8		5.48	5.48		2.00	1.94		<2	

Remarks:
Single underline denotes exceedance over Action Level.
Double underline denotes exceedance over Limit Level.

Water Monitoring Result at C1 - HKCEC
Mid-Ebb Tide

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO			Turbidity			Suspended Solids	
			m		°C			-			ppt			%			mg/L			NTU			mg/L	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
1/4/19	19:43	Cloudy	Middle	4.0	21.20	21.20	21.20	83.60	83.60	45.98	33.14	33.14	33.14	85.4	85.7	86.0	6.25	6.27	6.30	4.72	4.65	4.74	3	3.00
	19:44		Middle	4.0	21.20	21.20		8.36	8.36		33.14	33.14		86.3	86.7		6.32	6.35		4.85	4.73		3	
3/4/19	12:15	Fine	Middle	2.5	22.90	22.90	22.95	7.65	7.65	7.67	34.17	34.17	34.17	100.9	100.7	99.5	7.10	7.09	7.01	4.83	4.81	4.81	4	4.00
	12:17		Middle	2.5	23.00	23.00		7.69	7.69		34.17	34.17		98.3	98.2		6.92	6.91		4.80	4.80		4	
6/4/19	13:18	Fine	Middle	2.5	24.10	24.10	24.15	7.13	7.13	7.18	33.21	33.21	33.18	82.3	80.0	78.9	5.72	5.56	5.48	2.56	2.51	2.50	2	2.50
	13:20		Middle	2.5	24.20	24.20		7.22	7.22		33.14	33.14		77.4	75.7		5.37	5.26		2.49	2.43		3	
8/4/19	16:00	Fine	Middle	3.0	25.10	25.10	25.10	8.16	8.16	8.16	31.32	31.36	31.33	89.7	88.0	88.7	6.17	6.05	6.10	2.83	2.82	2.81	<2	<2
	16:02		Middle	3.0	25.10	25.10		8.15	8.16		31.32	31.32		88.7	88.5		6.09	6.08		2.80	2.79		<2	
10/4/19	15:15	Fine	Middle	3.0	26.10	26.10	26.30	8.16	8.16	8.17	30.66	30.66	30.66	99.4	97.5	98.9	6.77	6.67	6.73	2.35	2.34	2.34	3	3.50
	15:17		Middle	3.0	26.50	26.50		8.18	8.18		30.66	30.66		98.9	99.9		6.71	6.77		2.34	2.34		4	
12/4/19	17:30	Cloudy	Middle	2.5	22.60	22.60	22.60	7.44	7.44	7.46	33.26	33.26	33.26	93.9	93.8	93.9	6.70	6.70	6.70	1.99	1.97	1.96	6	6.00
	17:32		Middle	2.5	22.60	22.60		7.48	7.48		33.26	33.26		94.0	93.8		6.71	6.70		1.92	1.97		6	
15/4/19	19:52	Cloudy	Middle	3.0	22.40	22.40	22.40	7.46	7.46	7.46	33.67	33.67	33.67	88.6	89.3	88.3	6.33	6.36	6.30	3.99	3.97	3.95	5	4.50
	19:53		Middle	3.0	22.40	22.40		7.46	7.46		33.67	33.67		86.3	89.1		6.16	6.36		3.95	3.90		4	
17/4/19	11:20	Fine	Middle	2.5	23.90	23.90	23.95	7.44	7.44	7.44	32.50	32.50	32.50	95.3	95.6	94.9	6.66	6.68	6.65	3.14	3.11	3.12	3	3.00
	11:22		Middle	2.5	24.00	24.00		7.44	7.45		32.50	32.50		94.0	94.8		6.64	6.62		3.12	3.12		3	
19/4/19	11:40	Cloudy	Middle	2.5	24.40	24.40	24.45	7.38	7.38	7.39	31.79	31.79	31.79	90.6	89.0	90.5	6.30	6.19	6.29	3.90	3.99	3.96	3	3.00
	11:42		Middle	2.5	24.50	24.50		7.39	7.39		31.79	31.79		91.1	91.2		6.33	6.33		3.98	3.97		3	
23/4/19	14:50	Fine	Middle	3.0	25.90	25.90	25.95	8.14	8.14	8.14	29.56	29.56	29.56	85.9	87.8	85.9	5.41	5.04	5.53	4.19	4.29	4.20	4	3.50
	14:52		Middle	3.0	26.00	26.00		8.14	8.14		29.56	29.56		85.3	84.5		5.86	5.81		4.16	4.16		3	
25/4/19	16:55	Fine	Middle	2.5	26.90	26.90	26.70	7.47	7.47	7.48	29.60	29.60	29.60	93.9	94.8	94.7	6.40	6.46	6.45	2.75	2.71	2.71	4	3.50
	16:57		Middle	2.5	26.50	26.50		7.49	7.49		29.60	29.60		95.1	94.9		6.47	6.46		2.70	2.69		3	

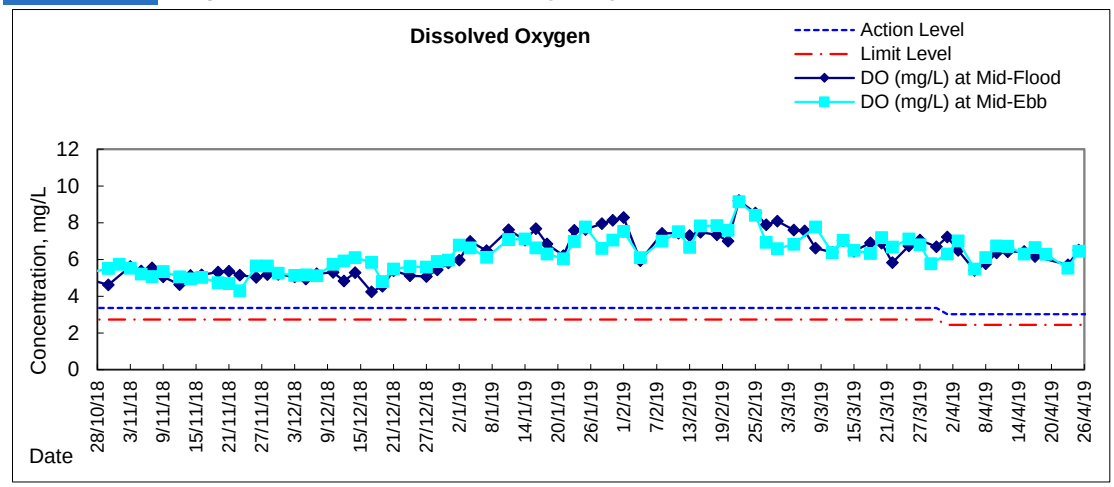
Remarks:
Single underline denotes exceedance over Action Level.
Double underline denotes exceedance over Limit Level.

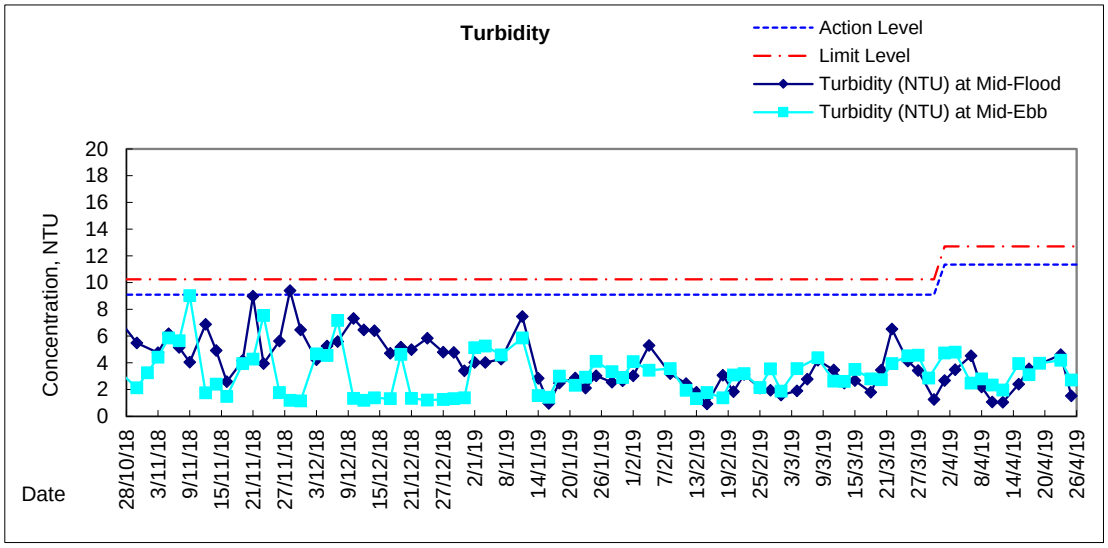
Water Monitoring Result at RW21-P789 - GEC/CRB/SHK
Mid-Ebb Tide

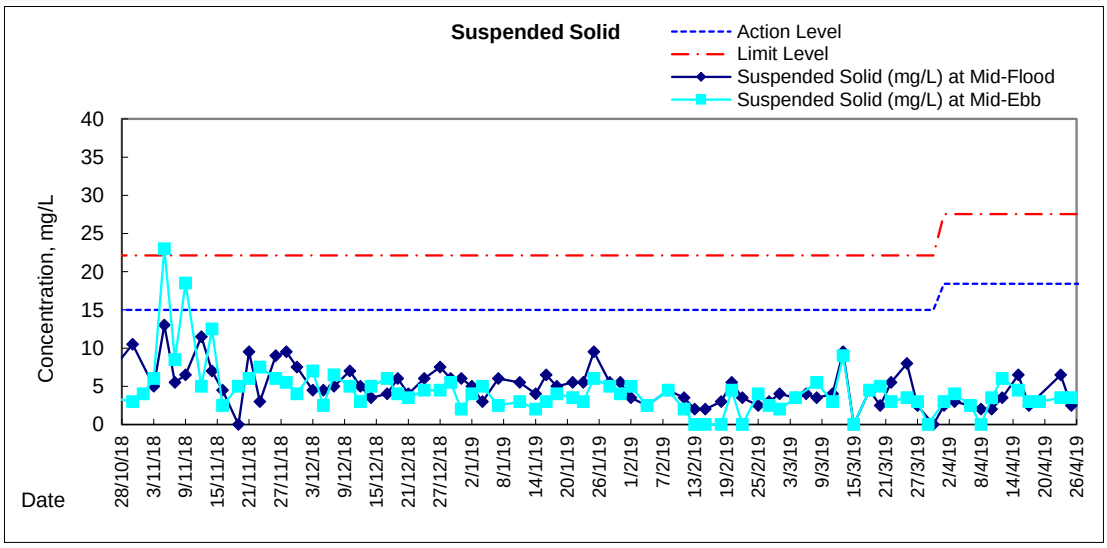
Date	Time	Weater Condition	Sampling Depth (m)		Water Temperature (°C)			pH (-)			Salinity (ppt)			DO Saturation (%)			DO (mg/L)			Turbidity (NTU)			Suspended Solids (mg/L)	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
1/4/19	22:55	Cloudy	Middle	4.0	21.10	21.10	21.10	8.18	8.18	8.18	32.64	32.64	32.64	85.6	86.5	86.6	6.29	6.35	6.36	5.65	5.69	5.59	5	5.50
	22:56		Middle	4.0	21.10	21.10		8.18	8.18		32.64	32.64		87.1	87.2		6.40	6.40		5.53	5.48		6	
3/4/19	11:25	Fine	Middle	3.5	22.60	22.60	22.65	7.73	7.73	7.75	34.07	34.07	34.06	97.0	97.1	96.7	6.87	6.88	6.85	5.05	5.04	5.05	4	4.50
	11:27		Middle	3.5	22.70	22.70		7.76	7.76		34.04	34.04		96.4	96.2		6.83	6.81		5.07	5.04		5	
6/4/19	13:30	Fine	Middle	3.5	23.90	23.90	24.05	7.26	7.26	7.30	33.30	33.30	33.22	82.2	82.8	82.6	5.71	5.76	5.74	2.68	2.40	2.47	3	3.00
	13:32		Middle	3.5	24.20	24.20		7.33	7.33		33.13	33.13		83.0	82.3		5.76	5.71		2.41	2.39		3	
8/4/19	16:15	Fine	Middle	3.0	24.60	24.60	24.85	8.09	8.09	8.10	31.90	31.90	31.90	82.0	82.1	80.2	5.65	5.66	5.53	5.65	5.59	5.50	4	4.00
	16:17		Middle	3.0	25.10	25.10		8.10	8.10		31.89	31.89		79.4	77.2		5.47	5.32		5.39	5.38		4	
10/4/19	15:40	Fine	Middle	3.0	25.60	25.60	25.85	8.14	8.14	8.15	30.96	30.96	32.23	80.4	82.9	85.0	5.49	5.66	5.80	1.53	1.53	1.49	4	4.00
	15:42		Middle	3.0	26.20	26.00		8.15	8.15		36.00	31.00		88.0	88.5		6.00	6.03		1.46	1.43		4	
12/4/19	16:50	Cloudy	Middle	4.0	22.60	22.60	22.60	7.55	7.55	7.56	33.09	33.09	33.09	91.0	90.9	91.1	6.50	6.49	6.51	2.93	2.93	2.95	2	2.50
	16:52		Middle	4.0	22.60	22.60		7.56	7.56		33.09	33.09		91.1	91.3		6.51	6.52		2.98	2.96		3	
15/4/19	21:50	Cloudy	Middle	4.0	22.20	22.20	22.20	7.60	7.60	7.60	33.56	33.56	33.56	92.7	90.6	92.0	6.64	6.49	6.59	5.53	5.45	5.36	6	6.50
	21:51		Middle	4.0	22.20	22.20		7.60	7.60		33.56	33.56		92.5	92.0		6.63	6.59		5.18	5.26		7	
17/4/19	11:30	Fine	Middle	3.5	23.70	23.70	23.75	7.47	7.47	7.49	32.69	32.69	32.69	90.0	90.6	90.4	6.30	6.35	6.34	5.62	5.63	5.57	2	2.50
	11:32		Middle	3.5	23.80	23.80		7.50	7.50		32.68	32.68		90.5	90.5		6.34	6.35		5.50	5.51		3	
19/4/19	12:45	Cloudy	Middle	3.5	24.20	24.20	24.30	7.44	7.44	7.45	32.20	32.20	32.20	95.3	94.7	93.0	6.64	6.59	6.52	3.72	3.71	3.71	4	3.50
	12:47		Middle	3.5	24.40	24.40		7.45	7.48		32.19	32.19		92.2	89.7		6.41	6.44		3.71	3.71		3	
23/4/19	15:05	Fine	Middle	3.0	25.10	25.10	25.25	8.13	8.13	8.14	29.92	29.92	29.91	81.1	80.7	80.6	5.61	5.61	5.59	8.92	8.71	8.57	4	4.50
	15:07		Middle	3.0	25.40	25.40		8.14	8.14		29.90	29.90		80.7	79.9		5.60	5.55		8.58	8.07		5	
25/4/19	16:30	Fine	Middle	3.5	27.30	27.30	27.35	7.36	7.36	7.38	29.63	29.63	29.63	97.6	97.9	97.7	6.55	6.56	6.56	1.27	1.28	1.28	4	3.00
	16:32		Middle	3.5	27.40	27.40		7.39	7.39		29.63	29.63		97.9	97.5		6.55	6.57		1.29	1.29		2	

Remarks:
Single underline denotes exceedance over Action Level.
Double underline denotes exceedance over Limit Level.

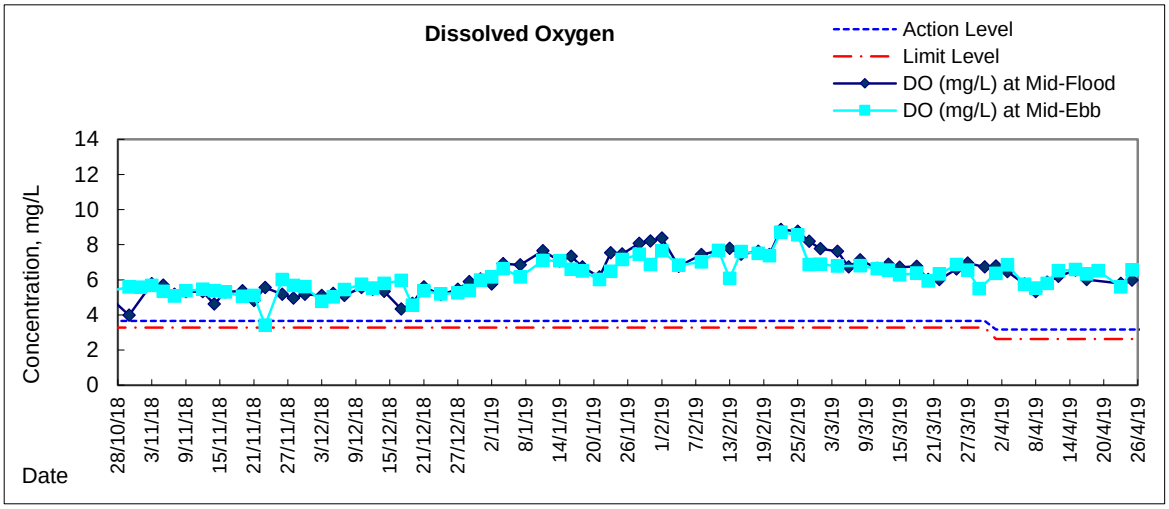
Graphic Presentation of Water Quality Result of C1 - HKCEC

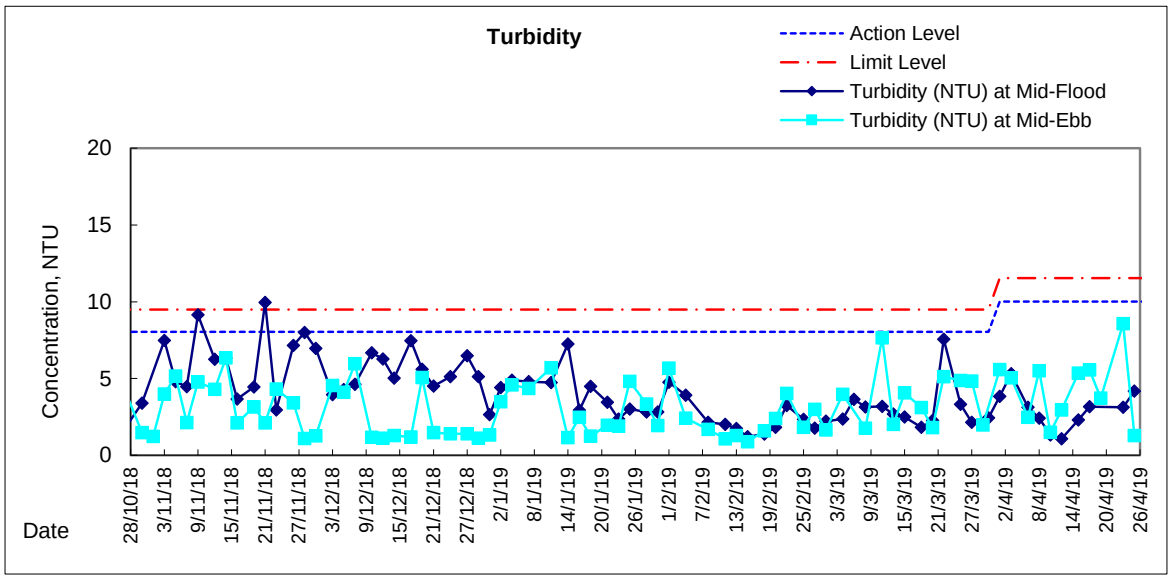


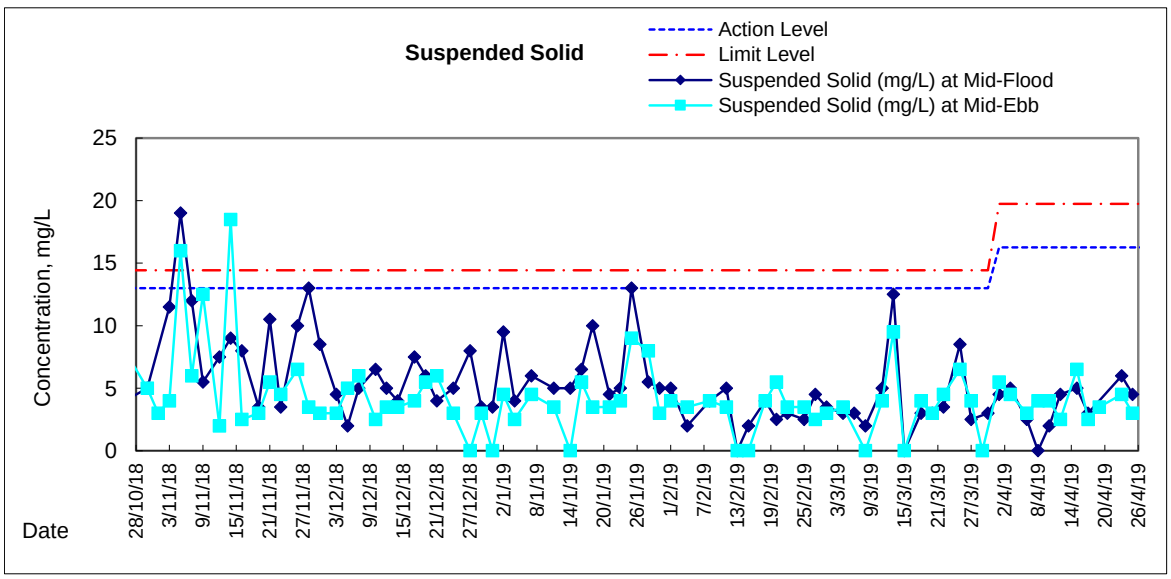




Graphic Presentation of Water Quality Result of RW21-P789 - GEC/CRC/SHK







Appendix 6.1

Event Action Plans

Event/Action Plan for Construction Noise

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
Action Level being exceeded	1. Notify ER, IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals. (The above actions should be taken within 2 working days after the exceedance is identified)

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
Limit Level being exceeded	1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. 4. Identify source and investigate the cause of exceedance; 5. 5. Carry out analysis of Contractor's working procedures; 6. 6. Discuss with the IEC, Contractor and ER on remedial measures required; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification; 3. Implement the agreed proposals; 4. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by the ER until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)

Event / Action Plan for Construction Air Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Check monitoring data submitted by ET; 2. Check Contractor's working method. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Notify Contractor. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate. (The above actions should be taken within 2 working days after the exceedance is identified)
2. Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IEC and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and ER; 8. If exceedance stops, cease additional monitoring. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Submit proposals for remedial to ER within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate. (The above actions should be taken within 2 working days after the exceedance is identified)
LIMIT LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform ER, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate. (The above actions should be taken within 2 working days after the exceedance is identified)
2. Exceedance for two or more consecutive samples	1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)

Event and Action Plan for Marine Water Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action level being exceeded by one sampling day	Repeat in-situ measurement to confirm findings; Identify source(s) of impact; Inform IEC and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC and Contractor; (The above actions should be taken within 1 working day after the exceedance is identified) Repeat measurement on next day of exceedance.	Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)	Discuss with IEC on the proposed mitigation measures; Make agreement on the mitigation measures to be implemented. (The above actions should be taken within 1 working day after the exceedance is identified)	Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET and IEC and propose mitigation measures to IEC and ER; Implement the agreed mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)
Action level being exceeded by more than one consecutive sampling days	Identify source(s) of impact; Inform IEC and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC and Contractor; Ensure mitigation measures are implemented; Prepare to increase the monitoring frequency to daily; (The above actions should be taken within 1 working day after the exceedance is identified) Repeat measurement on next working day of exceedance.	Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)	Discuss with IEC on the proposed mitigation measures; Make agreement on the mitigation measures to be implemented; Assess the effectiveness of the implemented mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)	Inform the Engineer and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET and IEC and propose mitigation measures to IEC and ER within 3 working days; Implement the agreed mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)

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

Event and Action Plan for Odour Patrol

Event	ACTION	
	Person-in-charge of Odour Monitoring	**Implementation Agent Identified by CEDD**
Action Level		
Exceedance of Action Level	1. Identify source/reason of exceedance; 2. Repeat odour patrol to confirm finding.	1. Carry out investigation to identify the source/reason of exceedance; 2. Rectify any unacceptable practice 3. Implement more mitigation measures if necessary; 4. Inform EPD or MD if exceedance is considered to be caused by expedient connections or floating debris.
Limit Level		
Exceedance of Limit Level	1. Identify source / reason of exceedance; 2. Repeat odour patrol to confirm findings; 3. Increase odour patrol frequency; 4. If exceedance stops, cease additional odour patrol.	1. Carry out investigation to identify the source/reason of exceedance. Investigation shall be completed within 2 weeks; 2. Rectify any unacceptable practice; 3. Formulate remedial actions; 4. Ensure remedial actions properly implemented; 5. If exceedance continues, consider what more/enhanced mitigation measures shall be implemented; 6. Inform EPD or MD if exceedance is considered to be caused by expedient connections or floating debris.

Appendix 6.2

Summary for Notification of Exceedance

Ref. No.	Date	Time	Location	Construction Noise Level, dB(A)	Parameter	Action Level	Limit Level dB(A)	Follow-up action	
-	-	-	-	-	-	-	-	-	-

Appendix 9.1

Complaint Log

Environmental Complaints Log

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
100321a	21/3/2010	ICC Case no. 1-224618029, Ms. Tsang	Location near Tin Hau	Complaint regarding the loud noise and dark smoke in the course of dredging works on 21 March 2010 (Sunday).	1) A valid Construction Noise Permit no. GW-RS0119-10 was granted from EPD since 18th Feb. 2010 for the dredging works which carry out at area for North Point Reclamation. 2) Officer from Marine Department, Police and EPD's officer attended the scene for inspection and investigation. 3) The Contractor (CHEC-CRBC JV) strictly comply all the conditions in CNP and take all mitigation measures in order to minimize the potential impacts to surrounding sensitive receivers. A formal letter was issued out by CHEC-CRBC JV and to explain the status of the recent construction activities. 4) No limit level exceedance was recorded on the noise measurement during day time and evening time noise measurement on 23 March 2010. Additional restrict hours noise monitoring at Causeway Bay Community and City Garden was conducted on 5 April 2010 (Public Holiday). No limit level exceedance was recorded in the monitoring. 5) No further complaints were received from Mr. Tsang in the reporting month. The complaint is considered closed.	Closed
100321b	21/3/2010	Unknown	Near the eastern breakwater of the Causeway Bay Typhoon Shelter	A public complaint and enquiry regarding loud noises emanated from dredging activities on 21/3/2010 (Sunday) until 2220 hours and between 1920-1946 hours in the evening of 22 March 2010(Monday).	1) A valid Construction Noise Permit no. GW-RS0119-10 was granted from EPD since 18th Feb. 2010 for the dredging works at area for North Point Reclamation during general holidays including Sunday between 0700-2300 hours and any day not being a general holiday between 1900-2300hours. It is complied with the condition of CNP. 2) Officer from Marine Department, Police and EPD's officer attended the scene for inspection and investigation. 3) No limit level exceedance was recorded on the noise measurement during day time and evening time noise measurement on 23 March 2010. Additional restrict hours noise monitoring at Causeway Bay Community and City Garden was conducted on 5 April 2010 (Public Holiday). No limit level exceedance was recorded in the monitoring. 4) No further complaints were received in the reporting month. The complaint is considered closed.	Closed

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
100504	4/5/2010	Public complainant received by ICC (ICC case: 1-233384048)	Watson Road	Complaint on the noise nuisance due to the large scale of dredging machine (face to Island East Corridor) in particular the hours 1900 to 0800 and request to reduce the noise level.	1) Contractor for HY/2009/11 was granted valid Construction Noise Permit no. GW-RS0119-10 for their dredging works. Contractor has implemented mitigation measures to reduce the working hour not later than 2230. 2) According to RSS 's record, no more daytime and night time dredging since the departure of the split hopper barge from the workplace on 29 April 2010 at 1900 hrs to 5 May 2010. 3) No further complaints were received in the reporting month. The complaint is considered closed.	Closed
100731	31/7/2010	Mr. Lee received by ICC (CC Case: 1-250702681)	Oil Street to Watson Road	Complaint on the noise nuisance due to the dredging works. Three construction plants were operated concurrently.	1) Contractor for HY/2009/11 was granted valid Construction Noise Permit no. GW-RS0371-10 for their dredging works. 2) There was only 1 grab dredger operated by Contractor within NPR project site area for dredging works. 3) No noise exceedance was recorded at noise monitoring station at Victoria Centre on 27 July and 3 August 2010 during daytime and evening time period. 4) It is considered as invalid from the EP and CNP point of view.	Closed
100812	12/8/2010	Mr. Wong, Harbour Heights (Management) Ltd.	Harbour Heights	Management office received their resident complained on the noise nuisance from the dredging works at the marine works area adjacent to the Harbour Height during the period from 0700 to 2200.	1) Contractor for HY/2009/11 was granted valid Construction Noise Permit no. GW-RS0371-10 for their dredging works. Contractor has implemented mitigation measures to reduce the working hour not later than 2230. 2) No noise exceedance was recorded at noise monitoring station at Victoria Centre on 10 and 17 August 2010 during daytime and evening time period. 3) It is considered as invalid complaint. No further complaints were received in the reporting month. The complaint is considered closed.	Closed

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
101108	8/11/2010	Mr. Nip received by ICC (CC Case)	Sai Wan Ho	Visual concern around the seaside silt screen outside the WSD freshwater intake pump at Sai Wan Ho (Monitoring station ref no.. WSD15)	1) Contractor for HY/2009/11has been regular checked of condition and removal of trapped rubbish before the dismantling of the floating silt screen to be replaced by wall mount silt screen. 2) Follow-up action had been immediately carried out to check and clear the floating refuse around the seaside silt screen after receipt of the complaint. 3) Removal of seaside silt screen outside the WSD freshwater intake (WSD15) by contractor HY/2009/11 was checked and confirmed dated 9 November 2010. Silt screen has been deployed into the existing steel frame at WSD15 for the protection of WSD salt water intake.	Closed
101110	10/11/2010	Mr. Wong, Harbour Heights (Management) Ltd.	Harbour Heights	Management office received their resident complained on the noise nuisance from the power mechanical equipment during the 0700 to 2200hrs	1) Contractor for HY/2009/11 was granted valid Construction Noise Permit no. GW-RS0870-10 for their dredging works during evening time. Contractor has implemented mitigation measures to reduce the working hour not later than 2230. 2) No noise exceedance was recorded at noise monitoring station at Victoria Centre on 4 and 10 November 2010 during daytime and evening time period. 3) It is considered as invalid complaint. No further complaints were received in the reporting month. The complaint is considered closed.	Closed
101203	3/12/2010, 01:45a.m.	The resident of Block 11, City Garden by ICC referral from Marine Department	North Point	Bad odour was generated from the dredging plant off North Point	1) The first investigation was carried out by Marine Department patrol in the morning on 3 Dec 2010 at around 10:00 and revealed that a few working barges were anchoring in the vicinity without carrying out dredging work. 2) A further specific investigation inspection on contractor's backhoe barge in the vicinity of City Garden was jointly conducted with Engineer Representatives (AECOM/RSS), and ET on 8 Dec 2010 at 11:30. No bad odour was noted during the investigation. 3) Routine dredging operation of the backhoe barge was performed during the jointed investigation inspection and it was revealed that no bad odour was attributed by the dredged materials inspected.	Closed
101206	6/12/2010	Ms Lui, the resident of 27/F, Block 10, City	City Garden, North Point	Two barges were generating noise at 22:00 on 6 December 2010 in which the noise from	1) ET confirmed the following information with resident site staff on the complaint: • It was referred to the filling operation at North Point	Closed

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
		Garden by ICC (ICC case: 1-266039336)		filling operation was louder than the traffic noise & visual impact was generated due to the spot-light pointing directly to the complainant flat, suspected the filling operation was part of Wanchai Development Phase II; Complainant also raised the same complaint to District Councillor, Mr. Hui on 7 Dec 2010 regarding the night-time noise and suspected earlier start of work at 06:30. Complaint also requested for limiting the plant operating hours from 09:00-21:00.	Reclamation of Central Wan Chai Bypass site area instead of part of Wanchai Development Phase II; • Two derrick barges were in operation at the time of complaint for placing 400 rockfill onto the excavation trench and for levelling the formation level to receive the pre-cast caisson seawall; • Flood light on the control mast of derrick barge have no lighting shields for the prevention of glare of flood lights; • No starting work on 7 Dec 2010 at 0630hours. 2) PME used in restricted hours were checked and confirmed compliant with valid CNP no. GW-RS0870-10. The noise level recorded on 6 Dec 2010 was complied with the noise criteria during restricted hour; 3) It was found that the occasional noise nuisance might be caused by the hitting or scratching onto the rock surface during loading down the grab onto the Grade 400 rockfill; 4) The absence of the lighting shields at flood light results in visual glare to the complainant at night-time. 5) Contractor was advised to minimize the finishing time of placing Grade 400 rockfill at 2100hrs and switch off all unnecessary flood lights apart from the light for the safety and security purpose; 6) No further complaint was received after implementation of proposed measures	
110415	15/04/2011	The resident, Mr Law at Victoria Centre by ICC (ICC#1-281451236)	North Point	A dust generation and a concern of mosquitoes breeding complaint in which suspected the filling operation was part of North Point Reclamation.	1) The concerned stockpile was a working stockpile under Contract HY/209/15 and was covered at night time after work. 2) Water spraying on the haul road and potential dust generating material at least 4 times a day was conducted by contractor that complies with the requirement. 3) It is considered invalid but preventive actions can be taken because the stockpile is relatively large and easily visible by complainant. 4) It was recommended that increasing the frequency of water spraying shall be conducted to all potential dust generating materials and activities. Besides, Contractor should consider to cover the idle part of the stockpile 5) The concern of mosquitoes breeding is out the scope of EM&A, the follow-up action is not reported in this monthly EM&A report.	Closed

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
110419	19/04/2011	Ms Chiu at Victoria Centre at Victoria Centre by ICC (ICC# 1-272874759)	North Point	The episode of night noise on 19/4/11 and 20/4/11 at 2:50 am and the noise lasted for 30 minutes per night.	1) According to the RSS's record, there was no construction works undertaken under the EP-356/2009 during the concern time period. 2) There was no abnormal real-time noise monitoring data recorded in RTN1 - FEHD Hong Kong Transport Section Whitefield Depot which is next to the Victoria Centre. 3) It is considered as invalid complaint under this Project.	Closed
110617	9/06/2011	Mr. Law from Victoria Centre Management Office	North Point	An odour nuisance suspected generating from the discharge point – Channel T at Watson Road in part of the site area was related to CWB under Contract no. HY/2009/11	1) The complaint was received by ET on 13 Jun 2011. During the weekly site inspection on 7 and 17 June 2011, there was no any odour impact detected in the site area. 2) According to the site record, there was muddy water discharged from the unknown source at upstream of Channel T during heavy rainstorm. No any site surface runoff to the Channel T and out of site boundary was observed in the inspection. 3) In order to prevent muddy water washing out to the water body under heavy rainstorm, a silt curtain was installed at the outfall of the channel by Contractor. ET confirmed with the Resident Site Staff that a silt curtain was installed at the outfall of the channel to prevent muddy water washing out to the water body under heavy rainstorm. Besides, regular cleaning of refuse in the channel has been conducted by Contractor. 4) A further site investigation on 28 June 2011 revealed that no odour nuisance was detected at the upstream of the Channel T and no source of odour nuisance was identified at site. As such, it was concluded that the source of odour nuisance was not related to the Project works. 5) Although no source of odour nuisance was identified at site, the muddy water and dirt from the unknown source at upstream of Channel T may cause a potential smell during low tide and low water flow. Contractor was reminded to remove the silt curtain at the channel on non-rainy day so as to avoid the accumulation of the sediment and dirt in the water channel.	Closed

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
110709	09/07/2011	Mr. Au from City Garden Management Office	North Point	A complaint letter to Contractor HY/2009/11 was raised by Cayley Property Management Limit on 9 July 2011 regarding a series of pump breakdown events at seawater intake of City Garden on 4, 6, 7 and 8 July 2011. A lot of rubbish such as plastic bags, nylon bags, nylon-wire mesh was observed sucking from the seawater intake at the seawater front of Block 7 of City Garden affecting the operation of seawater pump plant.	1) Contractor conducted formation works for installation of caisson seawall at C27, C28, C29 and C30 on 4, 6, 7 and 8 July 2011 and no dredging work was conducted during this time period 2) Water mitigation measures of an 80m long silt curtain at the site boundary in front of City Garden Relocation of silt curtain and silt curtain at the outfall of the channel were provided and maintained to accommodate the site works. All vessels are equipped with rubbish collection facilities and disposed the rubbish regularly. Also, daily cleaning actions had been taken by contractor to minimize floating refuse within the site boundary. 3) Moreover, it has been reported several times that discharged from outfall pipeline outside the site boundary near the intake of the pump maybe considered as another source of rubbish generation. 4) Referring to the record provided by Cayley Property Management Limit, the trapped rubbish was unlikely generated from the construction works. It was considered that complaint is invalid and not related to project.	Closed
110710	09/07/2011	Complainant by ICC (ICC no. 1-301520309	North Point	It was received at 00:56 on 10 July 2011. There was complained a derrick barge unloading rockfill material off the shore facing the Harbour Grant HK Hotel causing noise nuisance.	1) ET confirmed with the Resident Site Staff that the complaint was referred to Contract HY/2009/15 for the loading and unloading of fill material at two barges operation in the sea at around 300m adjacent to Island Eastern Corridor (Oil Street Chainage) where is outside the Site of HY/2009/15 in the period of around 19:45 on 9 July to 1:00 on 10 July 2011. 2) The material loading and unloading operation processed in restricted hours was checked without a valid CNP. It was found that the operation was due to an unexpected water leakage of the hopper barge and considered an incident. 3) According to the incident report provided from RSS on 20 July 2011, around 7:30 pm the barge S22 was inclined slightly and slightly water leakage might occur. Due to marine safety concern, the hopper barge would open the hopper to release the contained materials in order to reduce the weight and stabilize the barge. In consider of slight water leakage, the operator decided to use the nearby Derrick Barge ST32 to help for unload the general fill materials first and the unloading operation was started at around 7:45pm, and end at around 1:00 am. Contractor was reminder to provide frequent check of vessel condition	Closed

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
					so as to prevent recurrent by barge defect	
110723a	23/07/2011	Ms. Law at Victoria Centre by ICC no. 1-303887687	North Point	She concerned that Highways Department published a notice in their Management Office about construction works will be conducted from 0700 hours to 2300 hours during July to December 2011 including Saturday, Sunday and public holiday.	1) It was referred by AECOM to ET on 28 July 2011 2) RSS confirmed that the notice was prepared by Victoria Centre's Management office to their resident and the advice was only given on the extension construction works (for Contract HY/2009/15) to 7am-9pm from Monday to Saturday except Public Holidays and Sundays. 3) As a mitigation measure to minimize the noise nuisance in the vicinity of the residents, rock breaking activities will be started at 8am and is expected to be completed by mid-August 2011. 4) No noise exceedance was recorded at construction noise monitoring station at Victoria Centre on 19 and 25 July 2011 during daytime while breaking and excavation works were undertaken during monitoring. 5) In conclusion, it was related to the construction works under Contract HY/2009/15 and mitigation measure was provided. The complainant was satisfied with the arrangement and no further complaint was received after proposed measures.	Closed
110723b	23/07/2011	Ms. Yau at Block 2, Victoria Centre by ICC no. 1-304013959	North Point	Reclamation work was conducted at Causeway Bay Typhoon Shelter at 7am on 23 July 2011. She complained that the works shall be started later to minimize the noise nuisance to the vicinity of the residents in early morning	1) It was referred by AECOM to ET on 8 August 2011 2) With reference to the construction noise monitoring at Vitoria Centre, no exceedance was recorded on 19 and 25 July 2011 during daytime while breaking and excavation works were undertaken during monitoring 3) As a mitigation measure to minimize the noise nuisance in the vicinity of the residents, rock breaking activities will be started at 8am and is expected to be completed by mid-August 2011. 4) In conclusion, it was related to the construction works under Contract HY/2009/15 and mitigation measure was provided. The complainant was satisfied with the arrangement and no further complaint was received after proposed measures.	Closed
110727a	27/07/2011	Mr. Law from Victoria Centre Management Office by ICC no. 1-304616162	North Point	It was complained by Mr. Law from Victoria Centre Management Office on 27 July 2011 regarding construction noise generated by the construction operations of	1) It was referred by AECOM to ET on 28 July 2011 2) RSS confirmed to start the rock breaking activities for Contract HY/2009/15 at 8am as a mitigation measure to minimize the noise nuisance in the vicinity of the residents. 3) No noise exceedance was recorded at construction noise	Closed

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
				Central-Wanchai Bypass at noon rather than in morning at 7am.	monitoring station at Victoria Centre on 25 July and 4 August 2011 during daytime while breaking and excavation works were undertaken during monitoring. 4) In conclusion, it was related to the construction works under Contract HY/2009/15 and mitigation measure was provided. No further complaint from complainant was received after proposed the mitigation measure.	
110727b	27/07/2011	Ms. Chiu by ICC no.1-304615409	North Point	Noise nuisance from the excavation works for the Highways Department adjacent to the Victoria Centre was conducted from 7am	1) It was referred by AECOM to ET on 28 July 2011 2) With reference to the construction noise monitoring at Vitoria Centre, no exceedance was recorded on 25 July and 4 and 10 August 2011 during daytime while breaking and excavation works were undertaken during monitoring. 3) As a mitigation measure to minimize the noise nuisance in the vicinity of the residents, rock breaking activities will be started at 8am.	Closed
	08/08/2011				4) However, complainant did not satisfy with the response on the noise nuisance from the rock-breaking during morning in front of Victoria Centre and then further complaint via 1823 on 7 August 2011. 5) Highways contacted the complainant on 15 August 2011 that the noisy rock breaking operation had been completed. *Remarks: There will be counted as two complaints in this complaint log.*	
110810	10/08/2011	Mr. Yip by ICC no. 1 – 306740207	North Point	Muddy water was discharged from work site to the seafront near Oil Street during heavy rain. The environmental protection measures were not good enough and are needed to rectify.	1) It was referred by AECOM to ET on 17 August 2011. 2) Confirmed with RE, Muddy water was caused by a heap of earth being washed to the sea by heavy rain. The heap of earth was referred as a small stockpile placed close to the seafront in front of Oil Street within the site area under handover transition period from contract HY/2009/11 to contract HY/2009/19. The necessary mitigation measures to protect the small stockpile against rainfall were missing at the time of complaint. 3) Due to the missing of mitigation measures to protect the small stockpile during handover transition period, loose material was washed into the harbour when heavy rain came. Muddy water was formed and dispersed in the sea that caused the water quality and visual concern to the public. The complaint was considered as valid. 4) Contractors were advised to relocate the loose materials	Closed

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
					away from the coastline as far as practicable. Any loose material placed which needed to be placed near the coastline shall be properly compacted or covered as appropriate. To avoid any further environmental deficiency, Contractors shall ensure all necessary environmental mitigation measures will not be missing during site area handover.	
110826	26/08/2011	Grand Hyatt and a complainant by ICC	Wan Chai	Construction noise and vibration nuisance generated from the works at Convention Avenue and inside the HKCEC1 reclamation area.	1) Confirmed with the Resident Site Staff that the construction works were referred to the Contractor HK/2009/01. 2) The Excavator mounted breaker at Convention Avenue and Drilling rig at HKCEC1 reclamation area were the dominant construction noise source during this period. 3) The drilling rig at HKCEC1 reclamation area and excavator mounted breaker at Convention Avenue were then temporary suspended after received the complaint. 4) Investigation revealed that the erected noise barrier (4m cantilevered movable noise barrier for the drilling rig and 1m movable noise barrier for the excavator mounted breaker) were not located close to the plants to provide adequate noise screening. 5) Contractor was advised to avoid concurrent operation of construction plants at site. Further enhancement of movable noise barriers at HKCEC1 and providing noise enclosure for the excavator mounted breaker at Convention Avenue are needed. 6) Further site investigation and checking on 31 August and 7 September 2011 revealed that the implemented noise mitigation measures were in proper and minimize the noise impact.	Closed
110826A	26/08/2011	A complaint letter from Mr. Au of Cayley Property of City Garden	North Point	Harbor front adjacent to their cooling water intake suction which caused 3 times of system breakdown of the sea water pump on 9, 22 and 25 August 2011.	1) It was referred by AECOM to ET on 29 August 2011. Confirmed with the Resident Site Staff that the • construction works were referred to the Contractors HY/2009/11 and HY/2009/19. • The pump is located on the site area of HY/2009/19 • A temporary garbage defender was installed on 23 July 2011 by HY/2009/11 and the shape of the defender was adjusted on 8 August 2011 in order to excluse the outfall. • An ad hoc inspection of the effectiveness of garbage defender was conducted with RSS (CWB project	Closed

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
					team), contractor of HY/200911 and HY/2009/19 and IECon 29 August 2011. Inspection report of it was submitted to RSS on 19 September 2011. • Daily cleaning near the water intake was conducted twice a day by contractor HY/2009/19. • In response to City Garden request, the contractors have set up the temporary garbage defender in function and collect the floating refuses, but cannot eliminate all refuses, in particular the refuse coming from the seabed 2) According to the complaint letter from Cayley Property, the outcomes of the preventive measures were not complying wih their expectation. 3) During on-site inspection, floating refuses observed occasionally outside the garbage defender. No conclusion could be made for the source of these floating refuses. On the other hand, some of the refuses were observed floating behind the garbage defender during investigation. 4) All daily cleaning actions had been taken by contractor to minimize floating refuse inside the construction site. 5) It was noted that the cooling water intake was accessible to the public. As such, fish breeding and fishing activities were observed even though a notice has already hoisted. Also, tripping of rubbish by the passers-by could result in a lot of rubbish accumulated around the intake point. 6) Referring to the record provided by CPML, there were a lot of nylon/ plastic bags and nylon wire mesh that matched those rubbishes generated from the public activities. 7) Contractors have fulfilled the requirement of site cleanness and no exceedance was recorded during Water Quality Monitoring. It is consider the cause of this complaint is not related to project and environmental issue in this project as well. No more complaint received after ad-hoc inspection	
111014	14/10/2011	The complainant, Ms. Tam complained via hotline 1823	Wan Chai	The polluted fumes and exhaust from the excavation by sub-contractor of CEDD on pedestrian way outside no.25 Harbour Road (in front of the Harbour Centre)	1) RSS notified ET to carry out investigation on 17 October 2011. 2) ET confirmed with the Resident Site Staff that the location of the excavator was within site area of Contract no. HK/2009/02 undertaking the water cooling main reprovision works along the Harbour Road. The plants including the excavator have been checked before using	Closed

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					at the site. However, the polluted fumes and exhausted from the excavator was caused due to insufficient maintenance of the plant after using at site. 3) After receiving the complaint, the excavator was then removal off-site for checking and maintenance works on 17 October 2011. 4) Contractor was reminded to enhance regular checking and maintenance to all plants at site. 5) RSS has replied to the complainant on the arrangement of the measures taken on 17 October 2011. Complainant was satisfied with the response and follow-up action taken by the Contractor.	
111104	04/11/2011	Mr. Liu from LCSD complained via Contractor Complaint Hotline	Wan Chai	Complain about a tree near the site of pipe installation works outside Wan Chai Swimming Pool at Harbour Road, the status is not healthy and roof ball of two trees inside the site near Renaissance Hong Kong Harbour View Hotel at Convention Avenue were half cut.	1) ET confirmed with the Resident Site Staff that • A tree near the site of pipe installation works outside Wan Chai Swimming Pool at Harbour Road is the Tree no. TA1122 under Contract no. HK/2009/02. Leaves of a branch of this tree were shrivelled. • Two trees inside the site near Renaissance Hong Kong Harbour View Hotel at Convention Avenue are the tree nos. A160 and A161 under Contract no. HK/2009/01. Part of roof ball of these two trees was covered by the metal plate. 2) Independent Tree Specialists for these two inspected the trees. Contractor HK/2009/01 has taken the measure as recommend downgrading the soil level around the trunk base. Reinstating of the ground works will be conducted in mid-December 2011. For the tree no. TA1122 under Contract no. HK/2009/02, the brown leaves were removed and fenced the tree with orange net is provided to prevent damage of tree trunk by construction works. The distance between the tree and the edge of the trench is kept approximate 2m. Two Contractors were reminded to carry out regular watering to the trees within their site area.	Closed
111106	06/11/2011	Police officer	Wan Chai	Construction noise generated from the site at about 6:30 a.m on 6 November 2011 and require to stop the machine operation	1) According to the information reported by Contractor, one BC cutter and hoist were operated for Diaphragm Wall construction of Shatin-Central Link to inspect bentonite pipes and ensure no damages and all the joints are tightened in good position. Then, the subcontractor for Diaphragm wall, SAMBO Korean foreman stopped the engine of the BC cutter immediately. The police officer recorded the details and HKID number of the foreman and then left. Due to the different language communication between the police officer and the Korean foreman, no	Closed

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					CNP was checked by the police officer. 2) ET confirmed with the Resident Site Staff that same issue was also raised out by RSS at about 7:00a.m on the same day. Besides, it was confirmed that there is no valid Construction Noise Permit for the conducted construction works in the period between 2300 and 0700. 3) Due to insufficient communication between Contractor HK/2009/01 and their Korean Sub-contractor, Korean Sub-contractor had not notified to Contractor before carrying out the inspection of the BC cutter, hoists and bentonite pipes at about 6:00a.m to ensure no damages and all the pipe joints should be tightened and in good position. 4) Contractor was advised to enhance the communication between Contractor and sub-contractor and provide sufficient environmental training to all foreman and operators on restricted hour operation. Futhermore, Construction Noise Permit should be checked and in place for the construction works during restricted hour 5) This complaint was considered in relation to the conducted construction works during restricted hours without valid Construction Noise Permit. No more construction works were conducted during night time period. The construction works will be conducted in accordance with the time period stated in valid CNP. This complaint will be kept in view of any follow-up action from the relevant government activities.	
120405	05/04/2012	N/A	North Point	A complaint regarding excessive noise from construction sites of CBTS was observed daily before 7:30am except on public holidays, and the noise source was mainly from piling works. The complainant requested that construction works should start after 8:30am to avoid nuisance to nearby residents and a speedy follow-up and reply.	1) RSS notified ET on 5 April 2012. 2) ET confirmed with the Resident Site Staff that no piling works were performed during the concerned period. 3) After reviewing the results of noise monitoring (M2b and M3a), no exceedance was recorded during daytime period and the noise level was below 75dB(A). Site inspection for HY/2009/15 was conducted on 10 April 2012. The condition of noise mitigation measures around CBTS was found satisfactory. RSS confirmed that no pilings were performed during the concerned period. The major works included drilling, diaphragm wall construction and excavations. 4) HyD made a reply to the complainant on 16 April 2012 via 1823. HyD replied that the current works at CBTS were drilling, diaphragm wall construction and deep excavations. In order to minimize the noise generated	Closed

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					from the above works, the Contractor had erected temporary noise barriers and provided noise blankets on plants. RSS would continue to work with the Contractor on the effectiveness of the environmental mitigation measures implemented on site. No further complaint was received after the response.	
130308	06/03/2013	ICC Case#1-407181502	Tin Hau	A complaint regarding the dropping of fine rock material into surrounding waterbody was observed during rock breaking operation with two excavators in active operation at the Eastern Breakwater of Causeway Bay Typhoon Shelter near the North Point lighthouse.	1) RSS notified ET on 8 March 2013 2) ET confirmed with RSS that excavation works, installation of buoy, flashing light and silt curtain and dredging works were undertaken at Eastern Breakwater during the concerned period on 6 March 2013. One backhoe equipped with breaker and one derrick barge were confirmed in operation while another backhoe was at idle during the concerned period on 6 March 2013. 3) Reviewing the photo record provided by RSS, the condition of the silt curtain deployed around the Eastern Breakwater on 6 March 2013 was found to be in good condition. It is considered that the silt curtain was properly in place during the concerned period and the concerned act of dropping of fine rock material was confined within the silt curtain boundary without adverse impact to the nearby water quality. Further follow up was conducted on 12 March 2013 during weekly environmental audit inspection, the silt curtain deployed around the concerned area was found to be maintained in good condition and the water quality at the concerned work area was generally satisfactory. No violation of the Environmental Permit condition was found. The contracotr was advised and committed to implement preventive meaures to miminize the potential impact of work including conducting regular diver check to ensure the integrity and the extend of silt curtain deployment and to provide adequtae back up stock of silt curtain for emergency use.	Closed
140612	12/06/2014	EPD ref: EP/860/F2/24 Annex IV	Wan Chai	The complaint is regarding to the water quality of the waterfront outside the Hong Kong Academy for Performing Arts Theatre Block, where a large piece of muddy water was found.	1) WSII RSS team notified ET on 12 June 2014; Notification letter from EPD (ref: EP/860/F2/24 Annex IV) was received by ET on 13 June 2014. 2) ET confirmed with RSS that neither marine construction works nor barge operation was conducted at the concerned location during the time of complaint. With respect to the complaint case, muddy dispersion was observed at HKCEC2W works area on 12 June 2014, and	Closed

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					the dispersion was observed partly extended beyond the outermost layer silt curtain at 1000hrs. Immediate follow up action was requested. 3) It is considered that Contractor's mitigation measures would require further review on the effectiveness to avoid seepage of muddy dispersion such as regular diver inspection check and daily visual checking of silt curtains. Additional silt curtain at marine access zone was installed by Contractor on 12 June 2014 and the double layer silt curtain were generally in order. Follow-up inspection was further conducted on 16 June 2014. The Contractor's investigation report on the complaint case was submitted to EPA via email on 18 June 2014.	
140723	21/07/2014	ICC Case Ref: 2-341537112	Works area opposite to Ngan Tao Building	The complaint is regarding to construction noise impact to the complainant who could not sleep due to work and machine at the project site opposite to the Ngan Tao Building.	1) Construction noise impact referred by RSS was received by ET on 25 July 2014 2) ET confirmed with RSS that horizontal cutting and removal of D-wall at Eastern, Southern and Northern side of TS2 was undertaken by Contractor of HY/2009/15 within Causeway Bay Typhoon Shelter before 23:00hrs on 20 July 2014 that total 3 numbers of derrick lighter and 3 numbers of saw cut machine were in operation, and removal of D-wall at Panel S30A-1 of TS2 was undertaken by Contractor of HY/2009/15 within Causeway Bay Typhoon Shelter around 00:25hrs to 00:56hrs on 21 July 2014 that total 1 number of derrick lighter was in operation. 3) According to the relevant site records under Contract HY/2009/15, before 23:00hrs on 20 July 2014, horizontal cutting and removal of Diaphragm Wall at Eastern, Southern and Northern side of TS2 was conducted under HY/2009/15 within Causeway Bay Typhoon Shelter. Total 3 nos. of derrick lighter and 3 nos. of saw cut machine were in operation at the above period. From around 00:25hrs to 00:56hrs on 21 July 2014, removal of D-wall at Panel S30A-1 of TS2 was undertaken by Contractor of HY/2009/15 within Causeway Bay Typhoon Shelter. Total 1 no. of derrick lighter was found operating at the above period 4) It was considered the condition of CNP GW-RS0592-14 was not fulfilled by the Contractor of HY/2009/15. "From 00:25hrs to 00:57hrs on 21 July 2014, the PME(s) (1 no. of Derrick Lighter) on-site could not follow with any given PME grouping requirement(s) as stated in condition 3.a. and condition 3.d. in no. GW-RS0592-14."	Final report (Issue1) issued on 31 July 2014. Further to complainant follow-up, Final report (Issue2) Issued on 12 Aug 2014.

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					Notwithstanding the above, according to the site recorded provided by the RSS, the derrick lighter was found malfunction at around 23:00hrs on 20 July 2014 while the diaphragm wall cutting procedure was incomplete. Under safety and navigation consideration, the completion of diaphragm wall removal was necessary and of imminent need. 5) The Contractor of HY/2009/15 was advised to review the construction sequence and emergency response procedure for construction activities during restricted hours and night time period to allow for sufficient buffer time for work completion such that the Construction Noise Permit would be followed. Furthermore, the Contractor of HY/2009/15 was suggested to conduct throughout checking of PME used on site prior to work commencement to minimize the potential malfunctioning of PME during the course of work which affect the duration of works.	
141016	14/10/2014	EPD Ref.: EP860/E2/24 Annex IV ICC complaint received by ET on 10 October 2014	Work site next to new Wan Chai Ferry Pier and opposite to Wan Chai Sports Ground.	Construction noise like piling works was heard on 14 October 2014 night until 23:45 hrs. It was suspected that the noise was emanated from the work site next to new Wan Chai Ferry Pier and opposite to Wan Chai Sports Ground.	A public complaint regarding construction noise impact referred by EPD was received by ET on 16 October 2014 (EPD Ref.: EP860/E2/24 Annex IV dated 16 October 2014). The complainant reported that construction noise like piling works was heard on 14 October 2014 night until 23:45 hrs. It was suspected that the noise was emanated from the work site next to new Wan Chai Ferry Pier and opposite to Wan Chai Sports Ground. ET confirmed with the Resident Site Staff that From 19:00hrs to 23:00hrs on 14 October 2014, dredging works was conducted under Contractor of HK/2009/02 at WCR3 Area. Total one grab dredger was in operation. Mitigation measures including provision of steel sheeting screening to the power generation part of the grab dredger was implemented by the Contractor of HK/2009/02. From 23:00 hrs to 05:00 hrs, dredging works was conducted under Contractor of HK/2009/02 at WCR3 Area. Total one grab dredger was in operation. Mitigation measures including provision of steel sheeting screening to the power generation part of the grab dredger was implemented by the Contractor of HK/2009/02.	Interim investigation report submitted to EPD on 23 October 2014. Updated interim investigation with supplementary information submitted to EPD on 17 November 2014 EPD

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					From 23:00 hrs to 06:00hrs, panel replacement works was conducted under Contractor of HK/2009/02 at the Temporary Covered Walkway. Total one scissor platform and two hand held drills (battery) were in operation. From 23:00 hrs to 06:00hrs, trial pit works was conducted under Contractor of HK/2009/02 at Hung Hing Road.Total one crane lorry was in operation. According to the relevant site records under Contract HK/2009/02, from 19:00hrs to 23:00hrs on 14 October 2014, dredging works was conducted under Contractor of HK/2009/02 at WCR3 Area. Total one grab dredger was in operation. Mitigation measures including provision of steel sheeting screening to the power generation part of the grab dredger was implemented by the Contractor of HK/2009/02. From 23:00 hrs to 05:00 hrs, dredging works was conducted under Contractor of HK/2009/02 at WCR3 Area.Total one grab dredger was in operation. Mitigation measures including provision of steel sheeting screening to the power generation part of the grab dredger was implemented by the Contractor of HK/2009/02. From 23:00 hrs to 06:00hrs, panel replacement works was conducted under Contractor of HK/2009/02 at the Temporary Covered Walkway. Total one scissor platform and two hand held drills (battery) were in operation. From 23:00 hrs to 06:00hrs, trial pit works was conducted under Contractor of HK/2009/02 at Hung Hing Road. Total one crane lorry was in operation. In view of the above findings, no direct information associated with the noise concern was considered available.	advised no further comment on the updated interim report and case closed on 27 Nov 2014.

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141110	07/11/2014	EPD Ref.: H05/RS/00027815-14 EPD complaint received by ET on 10 November 2014	Construction site at old Wan Chai Ferry Pier	Malodour of construction plant exhaust from the construction site at old Wan Chai Ferry Pier was scented that affecting the swimmers at Wan Chai Swimming Pool.	A public complaint regarding odour concern referred by EPD was received by ET on 07 November 2014 (EPD Ref.: H05/RS/00027815-14 dated 10 November 2014). The complainant reported that Malodour of construction plant exhaust from the construction site at old Wan Chai Ferry Pier was scented that affecting the swimmers at Wan Chai Swimming Pool. ET confirmed with the Resident Site Staff that ELS works was conducted on 7 November 2014 during daytime at Portion 2 (Area oppsite to WanChai Swimming Pool). Total 3 nos. of excavators, 2 nos. of crawler cranes, 2 nos. of generator, 1 no. of crane lorry and 2 no. of dump trucks were operated. Demolition works was conducted on 7 November 2014 during daytime at West of old Wan Chai Ferry Pier. Total 2 nos. of excavators, 1 no. of derrick barge and 1 no. of tug boat were operated. Dredging works was conducted on 7 November 2014 during daytime at WCR3 (East of old Wan Chai Ferry Pier) Total 1 no .of dredger, 1 no. of hopper and 1 no. of tug boat were operated. According to the relevant site records under Contract HK/2009/02, ELS works was conducted on 7 November 2014 during daytime at Portion 2 (Area oppsite to WanChai Swimming Pool). Total 3 nos. of excavators, 2 nos. of crawler cranes, 2 nos. of generator, 1 no. of crane lorry and 2 no. of dump trucks were operated. Demolition works was conducted on 7 November 2014 during daytime at West of old Wan Chai Ferry Pier. Total 2 nos. of excavators, 1 no. of derrick barge and 1 no. of tug boat were operated. Follow-up inspection was conducted during weekly environmental inspection on 13 November 2014, no dark smoke emission was observed from the PMEs operating on-site. The condition of chemical waste storage was considered satisfactory and no malodour was identified. Despite no information related to malodour was identified, the Contractor was reminded to conduct regular checking on the condition of PMEs to ensure only well maintained PMEs are used on site.	Interim investigation report submitted to EPD on 17 November 2014. EPD advised no comment on the interim report and case closed on 1 Dec 2014.

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					Based on the relevant information provided by RSS, despite no information associated with the malodour concern was identified after investigation, the Contractor was reminded to conduct regular checking on the condition of PME used on site to ensure only well maintained PME are used on site The interim report would be submitted to EPD on 17 November 2014.	
141113	12/11/2014	EPD Ref.: H05/RS/00028253-14 EPD complaint received by ET on 13 November 2014	Construction site at old Wan Chai Ferry Pier	Malodour and dark smoke emission from an excavator located at the construction site at old Wan Chai Ferry Pier was observed that affecting the pedestrians.	A public complaint regarding odour concern referred by EPD was received by ET on 13 November 2014 (EPD Ref.: H05/RS/00028253-14 dated 13 November 2014). The complainant reported thatMalodour and dark smoke emission from an excavator located at the construction site at old Wan Chai Ferry Pier was observed that affecting the pedestrians. (Contract HK/2009/02) ET confirmed with the Resident Site Staff that demolition works was conducted under Contract HK/2009/02 on 12 November 2014 during daytime at old Wan Chai Ferry Pier. Total 2 nos. of excavators, 1 no. of derrick barge and 1 no. tug boat were operated. According to the relevant site records under Contract HK/2009/02, demolition works was conducted on 12 November 2014 during daytime at old Wan Chai Ferry Pier. Total 2 nos. of excavators, 1 no. of derrick barge and 1 no. tug boat were operated. In addition, investigation found that due to malfunctioning of one of the excavators deployed at old Wan Chai Ferry Pier, dark smoke was emitted from the defective excavator for a short period of approximately 30 seconds at around 15:00 hrs on 12 November 2014. The operation of excavator was immediately suspended and followed by repair works. The normal operation of the excavator was resumed after repair. Follow-up inspection was conducted during weekly environmental inspection on 13 November 2014, no dark smoke emission was observed from the PMEs operating on-site and the Contractor of HK/2009/02 was reminded to conduct regular checking on the condition of PMEs to ensure only well maintained PMEs are used on site.	Interim investigation report submitted to EPD on 19 November 2014. EPD advised no comment on the interim report and case closed on 8 Dec 2014.

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141121	Not Specified	EPD Ref: H08/RS/28263-14 EPD complaint information and findings was received by ET via email on 21 Nov 2014	Causeway Bay Typhoon Shelter	Resident in Hing Fat Street complaining about loud noise from dredging work in CBTS up to 10pm at night.	EPD received a construction noise complaint from dredging works at Causeway Bay Typhoon Shelter and a resident in Hing Fat Street complaining about loud noise from dredging work in CBTS up to 10pm at night. EPD investigation found that the operation of a derrick barge is covered by CNP no. GW-RS0701-14. EPD reminded the Contractor of HY/2011/08 to ensure the work strictly follow the permit conditions and endeavor to minimize the noise as so not to disturb the nearby residents.	Complaint case handled by EPD and relevant investigation findings was sent to ET on 21 November 2014
150127	21 Jan 2015	EPD complaint (EPD Ref.: H05/RS/00001 725-15) received by ET on 27 January 2015 and further information from EPD regarding the updated location under complaint was received by ET on 30 January 2015	A portion of Hung Hing Road immediately to the east of Marsh Road near SPCA	Construction dust and grit was emitted from the construction site to the carriageway causing nuisance to the public.	A public complaint regarding air quality impact referred by EPD was received by ET on 27 January 2015 (EPD Case Ref.: H05/RS/00001725-15 dated 27 January 2015) and further information from EPD regarding the updated location under complaint was received by ET on 30 January 2015. The complainant reported that construction dust and grit was emitted from the construction site to the carriageway causing nuisance to the public. ET confirmed with the Resident Site Staff that the major construction activities around the concerned location conducted on 21 January 2015 include breaking of seawall blocks and D-wall at TPCWAW; concreting, grouting and drilling works at TPCWAW;reclamation/ backfilling works at TPCWAW Mitigation measures implemented by the Contractor for the above construction works include spraying haul road with water; covering bagged cement with tarpaulin; providing three sided and top covering for grouting stations; providing water spraying to dusty activities such as breaking works According to the relevant site records, breaking of seawall blocks and D-wall, concreting, grouting and drilling works and reclamation/ backfilling works were	Interim report submitted to EPD on 9 February 2015, EPD advised no comment on 27 February 2016 on the interim report submitted and case closed.

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					conducted at TPCWAW. Dust mitigation measures including spraying haul road with water, covering bagged cement with tarpaulin, providing three sided and top covering for grouting stations and water spraying to dusty activities such as breaking works were implemented by the Contractor of HY/2009/15 near the concerned location on 21 January 2015. Follow-up investigation was conducted on 27 January 2015 during weekly environmental inspection, dust mitigation measures including water spraying for dusty haul road and major dust generation works; and provision of three sides and top covering for grouting station were confirmed in place. In addition, based on the review of the monitoring data of the monitoring station located at the concerned location raised by the complainant, namely monitoring station CMA3a , no action or limit level exceedance was recorded during air quality monitoring conducted on 20 and 21 January 2015. Nevertheless, the Air Quality Health Index (AQHI) recorded by EPD across Western District and Eastern District on the complaint date was ranged from 4 to 10+ indicating a severely high concentration of ambient air pollutants. As such, the site condition under Contract HY/2009/15 at the concerned location was considered to be generally satisfactory and no non-conformity related to cumulative air quality impact was observed. Nevertheless, in view of the public concern, the contractor was reminded to enhance the dust mitigation measures implemented to minimize potential nuisance to nearby public.	
150622	18 June 2015	EPD Ref.:H05/RS/ 00015054-15 dated 8 June	A mooring location near shore and at location outside Wan Chai Sports	Dark smoke and malodour emission was observed from a hopper barge moored near shore and	A public complaint regarding dark smoke and malodour concern referred by EPD was received by ET on 22 June 2015 (EPD Ref.: H05/RS/00015054-15 dated 22 June 2015). The complainant reported that dark smoke and malodour emission was observed from a hopper barge	Interim report submitted to EPD on 29 June 2015 and EPD

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		2015	Ground	other construction plants under operation from the reclamation construction site	moored near shore and other construction plants under operation from the reclamation construction site with Contract no. HK/2009/02 at location outside Wan Chai Sports Ground caused air pollution. The complainant alleged that the said situation had been observed for a prolonged period. ET confirmed with the Resident Site Staff that reinforced bar fixing and concreting work (on 17 June 2015 only) were conducted at Portion 2 from 15 June 2015 to 19 June 2015. Total 3 nos. of mobile crane were in operation. On 17 June 2015, one no. of concrete pump truck and two nos. of concrete mixer were in operation.Excavation and Lateral Support was conducted at Portions 3 & 4 from 15 June 2015 to 19 June 2015. Total 4 nos. of excavator, 2 nos. of truck and 2 nos. of crawler crane were in operation. In addition, on 15 June 2015, 17 June 2015 and 19 June 2015, 1 no. of derrick barge was moored near Portions 3 & 4 for transportation of the excavated material away from site. According to the relevant site records under Contract HK/2009/02, from 15 June 2015 to 19 June 2015, reinforced bar fixing and concreting work (on 17 June 2015 only) were conducted at Portion 2 and total 3 nos. of mobile crane, one no. of concrete pump truck (on 17 June 2015 only) and two nos. of concrete mixer (on 17 June 2015 only) were in operation; excavation and lateral support was conducted at Portions 3 & 4 and total 4 nos. of excavator, 2 nos. of truck and 2 nos. of crawler crane were in operation. Based on relevant site record, no hopper barge was moored under Contract HK/2009/02 around the concerned location while 1 no. of derrick barge was moored under Contract HK/2009/02 near Portions 3 & 4 for transportation of the excavated material from Portions 3 & 4 away from site on 15 June 2015,17 June 2015 and 19 June 2015 respectively. Follow-up inspection was conducted during weekly	advised no comment on 20 July 2016 on the interim report submitted and case closed.

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
					environmental inspection on 25 June 2015, no dark smoke and malodour emission was observed from the PMEs operating on-site. A derrick barge was observed moored near Portions 3 & 4 and excavated material was transferred to the derrick barge by the excavators on land without barge operation and no particular dark smoke and malodour emission was observed. Nevertheless, the Contractor was reminded to conduct regular checking on the condition of the derrick barge and other PMEs deployed on site to ensure only well maintained PMEs are used to avoid potential dark smoke and maldour emission affecting nearby public.	
150723	20 July 2015	EPD Ref.:H05/RS/ 00018040-15 dated 23 July 2015	Ex-Wanchai Ferry Pier near 720 & & 722 Bus stop	Malodour from marine sediment	A public complaint regarding malodour referred by EPD was received by ET on 23 July 2015 (EPD Ref.: H05/RS/00018040-15 dated 23 July 2015). The complainant reported that malodour from marine sediment was scented at ex-Wanchai ferry pier near route 720 & 722 bus stop. (Contract HK/2009/02). ET confirmed with the Resident Site Staff that Rockfill placing works was conducted by one derrick barge at the concerned location (WCR3) under Contract HK/2009/02 on 20 July 2015. No marine sediment was stored or placed on site at the concerned location under Contract HK/2009/02 on 20 July 2015. According to the relevant site records under Contract HK/2009/02, rockfill placing works was conducted by one derrick barge at WCR3 area on 20 July 2015 and no marine sediment was stored or placed on site at the concerned location on the concerned date. Follow-up inspection was conducted during weekly environmental inspection on 29 July 2015. No marine sediment was observed stored or placed at the concerned location while it was noted that a culvert outfall with potential odour concern is located adjacent to the concerned location.	Interim report submitted to EPD on 30 July 2015. EPD advised no comment on 17 August 2015 on the interim report submitted and case closed.

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
					Nevertheless, the Contractor was reminded to review the handling procedures in case of any future marine sediment handling at the concerned location and to consider the implementation of mitigation measures as appropriate to minimize potential malodour impact to nearby public.	
150904	01 Sept 2015	EPD Ref.: H05/RS/00022241-15 dated 04 September 2015 received by ET on 4 September 2015	East of New WanChai Ferry Pier	Dropping of excavated material from land to sea during laoding of material	A public complaint regarding dropping of excavated material from land to sea referred by EPD was received by ET on 04 September 2015 (EPD Ref.: H05/RS/00022241-15 dated 04 September 2015). The complainant reported that dropping of excavated materials from land to sea during loading of materials by excavator at the construction site to work boat. (Contract HK/2009/02) ET confirmed with the Resident Site Staff that transferring of C&D materials from land to hopper barge by excavator at seaside along CWB Tunnel Portions 3 and 4 was undertaken by Contract HK/2009/02 on 01 September 2015. Mitigation measure including providing tarpaulin sheet to cover the gap between seawall and the hopper barge to prevent dropping of material to the sea was implemented by the Contractor. According to the relevant site records under Contract HK/2009/02, transferring of C&D materials from land to hopper barge by excavator at seaside along CWB Tunnel Portions 3 and 4 was carried out on 01 September 2015 and mitigation measures including provision of tarpaulin sheet between seawall and the hopper barge was implemented by the Contractor of HK/2009/02 on the concerned date. Follow-up inspection was conducted during weekly environmental inspection on 10 September 2015. Transferring of C&D materials from land to barge by excavator was observed at the concerned location and mitigation measures including provision of tarpaulin sheet between seawall and hopper	Interim report submitted to EPD on 14 September 2015. EPD advised no comment on 5 October 2015 on the interim report submitted and case closed

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
					barge and the material transfer works was generally in order. Nevertheless, the Contractor of HK/2009/02 was reminded to maintain the handling procedure for C&D materials transfer from land to hopper barge and regularly inspect the condition of the tarpaulin sheet provided to ensure the nearby water quality are not affected by the loading and unloading of material from land side to hopper barge. The Contractor was reminded to maintain the handling procedure for C&D materials transfer from land to hopper barge and regularly inspect the condition of the tarpaulin sheet provided to ensure the nearby water quality are not affected by the loading and unloading of material from land side to hopper barge.	
150904	02 Sept 2015	EPD Ref.: H04/RS/00022385-15 dated 04 September 2015 received by ET on 04 September 2015	Location outside Fleet Arcade	Construction noise was generated from the construction site of HK/2012/08 at location outside Fleet Arcade during night time on weekdays and daytime during General Holidays. The complainant also concerned construction dust and exhaust emission from derrick barges during transporting C&D material at the site.	A public complaint regarding construction noise and dust and exhaust emission referred by EPD was received by ET on 04 September 2015 (EPD Ref.: H04/RS/00022385-15 dated 04 September 2015). The complainant reported that construction noise was generated from the construction site of HK/2012/08 at location outside Fleet Arcade during night time on weekdays and daytime during General Holidays. The complainant also concerned construction dust and exhaust emission from derrick barges during transporting C&D material at the site. (Contract HK/2012/08) ET confirmed with the Resident Site Staff that from 0800 hrs to 1800 hrs on 30 August 2015, removal of scaffold and timber and installation of bulkhead was undertaken by the Contractor of HK/2012/08 at the concerned location. Total one generator and one circular saw were in operation. From 1900hrs on 30 August 2015 to 0700 on 31 August 2015, no construction works was undertaken by the Contractor of HK/2012/08 at the concerned location.	Interim report submitted to EPD on 14 September 2015. 2nd interim report submitted to EPD on 17 Dec 2015 3rd interim report submitted to EPD on 31 Dec 2015

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
					From 1900hrs on 31 August 2015 to 0700hrs on 01 September 2015, no construction works was undertaken by the Contractor of HK/2012/08 at the concerned location. From 1900hrs to 2115 hrs on 01 September 2015, unloading of soil was undertaken by the Contractor of HK/2012/08 at the concerned location. Total one derrick barge was in operation. From 2300hrs on 01 September 2015 to 0700hrs on 02 September 2015, no construction works was undertaken by the Contractor of HK/2012/08 at the concerned location. One derrick barge was deployed for unloading of soil on 02 September 2015 during daytime under Contract HK/2012/08 at the concerned location. Based on the relevant site records, from 0800 hrs to 1800 hrs on 30 August 2015, removal of scaffold and timber and installation of bulkhead was undertaken by the Contractor of HK/2012/08 at the concerned location. Total one generator and one circular saw were in operation and the relevant Construction Noise Permit GW-RS0296-15 for the concerned operation was confirmed in place. From 1900hrs on 30 August 2015 to 0700 on 31 August 2015, no construction works was undertaken by the Contractor of HK/2012/08 at the concerned location and from 1900hrs on 31 August 2015 to 0700hrs on 01 September 2015, no construction works was undertaken by the Contractor of HK/2012/08 at the concerned location. From 1900hrs to 2115 hrs on 01 September 2015, unloading of soil was undertaken by the Contractor of HK/2012/08 at the concerned location. Total one derrick barge was in operation and the Construction Noise Permit GW-RS0296-15 for the concerned operation was confirmed in place.	

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
					From 2300hrs on 01 September 2015 to 0700hrs on 02 September 2015, no construction works was undertaken by the Contractor of HK/2012/08 at the concerned location. In view of the above, the construction activities conducted under Contract HK/2012/08 during the concerned period was in compliance with the statutory requirement. In addition, one derrick barge was deployed for unloading of soil on 02 September 2015 during daytime under Contract HK/2012/08 at the concerned location. Follow-up inspection was conducted during weekly environmental inspection on 08 September 2015 and no dark smoke emission was observed from the derrick barge moored outside the concerned location. Nevertheless, the Contractor of HK/2012/08 was reminded to conduct regular checking on the condition of the all derrick barges deployed on site to ensure only well maintained equipment are used to avoid potential dark smoke emission affecting nearby public and the Contractor of HK/2012/08 was reminded to upkeep the site control system for construction works carrying out at restricted hours and night time for Construction Noise Permit compliance. The Contractor was reminded to conduct regular checking on the condition of derrick barges deployed on site to ensure only well maintained equipments are used on site to avoid potential dark smoke emission affecting nearby public. The Contractor of HK/2012/08 was reminded to upkeep the site control system for construction works carrying out at restricted hours and night time for Construction Noise Permit compliance.	
150917	17 Sep 2015	A public complaint regarding water quality referred by EPD was	Central and Wan Chai Reclamation coastline (between LUNG WUI ROAD to LUNG WO ROAD,	Silt from Central and Wan Chai Reclamation was spotted along the coastline (between LUNG WUI ROAD to LUNG WO ROAD, Central & Wan	Based on the site records confirmed by RSS, removal of seawall blocks by derrick barge was undertaken by Contract HK/2012/08 at Central Reclamation Phase III works area while mitigation measures including provision of silt curtain implemented by the Contractor of HK/2012/08 during the	Interim investigation report submitted to EPD on 25

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
		received by ET on 17 September 2015	Central & Wan Chai, Hong Kong)	Chai, Hong Kong)	seawall block removal works. According to relevant record, muddy dispersion at HKCEC2W (area opposite to Lung King Street) was observed by the Environmental Team on 14 September 2015 afternoon. The muddy patch was observed dispersing outside the outer layer silt curtain deployed by the Contractor of HK/2012/08 towards the Central Reclamation Phase III area while the outer layer silt curtain was observed partially opened. In view of the above observations, the Contractor was advised to rectify any environmental deficiencies such that adequate protection such as silt curtain shall be provided for exposed soil slope to mitigate for potential runoff related water quality impact to the surrounding waters; outer layer silt curtain deployed shall be entirely closed during works to safeguard the surrounding water quality. Any opening for marine vessel shall be closed promptly after passage and localized silt curtain deployed on site shall be properly maintained to avoid any gap or opening to effectively safeguard the nearby waters.	September 2015. EPD advised no comment on 14 October 2015 and case closed.
151015	11 Oct 2015	A public complaint regarding direct discharge of muddy effluent referred by RSS was received by ET on 14 October 2015	Seafront opposite to Watson Road adjacent to Eastern Breakwater	Pink fluid was observed discharged into marine waters at seafront opposite to Watson Road adjacent to the Eastern Breakwater on 11 October 2015.	Based on the site records confirmed by RSS, no construction activity near the seaside between Eastern Breakwater and the Dumping Jetty was undertaken by Contract HY/2009/19 while at site area away from the seawall, construction of EVB substructure, EVB and APS structure was undertaken on 11 October 2015. In addition, no works involving the use of paint was carried out at the concerned site area (Site Portion between Eastern Breakwater and the Dumping Jetty) and along the alignment of the Culvert T1 under Contract HY/2009/19 and no temporary storage of paint was located at the concerned site area and along the alignment of the Culvert T1 under HY/2009/19 on 11 October 2015. Follow-up inspection was conducted during weekly environmental inspection on 14 October 2015. No construction works involving the use of paint was observed undertaken at the concerned location while a few number of small containers of paint was observed placed around the concerned location and the paint containers were sealed and no sign of leakage was observed. The few containers were further checked and was found not matching the pink fluid observed on the complaint date. On the other hand, a culvert discharge outfall was found located within the concerned area where the pink fluid was observed. Based on the above, no direct information indicating the pink	HyD will consolidate all input from relevant parties to form a reply to ICC.

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
					fluid was originated from the worksarea under HY/2009/19 was considered available. Nevertheless, the Contractor was reminded that paints stored on site shall be properly labelled and stored in sealed container at weather proof location to avoid potential spillage.	
151028	26 Oct 2015	A public complaint regarding construction noise impact referred by EPD was received by ET on 28 October 2015 (EPD Ref:H05/RS/00027330-15 Dated 28 October 2015)	Construction Site next to ex-Wan Chai Ferry Pier	Operation of grab dredger at construction site near the ex-Wan Chai Ferry Pier from around 0100 to 0400 hours on 26 October 2015 caused noise nuisance.	According to the relevant site records under Contract HK/2009/02, from 01:00hrs to 04:00hrs on 26 October 2015, rock filling was conducted under Contractor of HK/2009/02 at WCR3 Area. Total one grab dredger was in operation. Mitigation measures including provision of steel sheeting screening to the power generation part of the grab dredger was implemented by the Contractor of HK/2009/02 and the relevant Construction Noise Permit GW-RS1121-15 for the concerned construction works was in place. The construction activity conducted under Contract HK/2009/02 during the concerned period was in compliance with the statutory requirement. Nevertheless, the Contractor was reminded to upkeep the site control system for construction works carrying out at restricted hours and night time for Construction Noise Permit compliance in view of the nearby public concern.	The interim report would be submitted to EPD on 05 November 2015 and EPD advised no comment on 16 November 2016 and case closed.
151116	13 November 2015	A public complaint regarding water quality referred by EPD was received by ET on 16 November 2015 (EPD Ref: H05/RS/00029126-15)	Construction Site at HKCEC and seafront outside Lung Wo Road	Muddy water was discharged from the construction site at HKCEC and dispersed to seafront outside Lung Wo Road on 13 November 2015 afternoon. The complainant also alleged that the deployment of the silt curtain did not follow the design requirement under the environmental permit that the curtain should be hanged to seabed level	Based on the site records, rock mound trimming works was conducted under Contract HK/2012/08 at HKECE2 area on 13 November 2015 and mitigation measures including provision of localized silt curtain around the works area was implemented by the Contractor. Follow-up inspection was conducted during weekly environmental inspection on 17 November 2015, both outer layer silt curtain and localized layer of silt curtain around the active works area were observed deployed while the localized silt curtain deployed around the marine works area was observed partially opened for marine access. Despite no muddy dispersion was generated around the localized silt curtain enclosed area, the Contractor was advised to promptly improve the condition of the silt curtain to ensure the effectiveness of the mitigation measure deployed and to ensure the silt curtain is closed after marine vessel movement. Based on further review on the current construction stage at HKECE2, the dredging works and trench filling works were completed and filling works were conducted behind seawall or temporarily seawall in form of rockbund, the outer layer of silt curtain currently serves as the additional mitigation measure to	The interim investigation report would be submitted to EPD on 1 December 2015 and record of diving inspection conducted on 27 November 2016 was forwarded to EPD on 4 Dec 2016. EPD advised no further comment on 14 Dec 2015 and case closed.

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
					the required silt curtain deployment for safeguarding the water quality in the area. To clarify for the current silt curtain arrangement, the Contractor was advised to submit an updated silt curtain deployment plan with respect to the latest silt curtain arrangement for the current construction stage. In addition, contaminated discharge at Culvert L originating from upstream locations was intermittently observed based on previous site records. Nevertheless, in view of the public concern, the Contractor was reminded to conduct regular checking on the condition and maintenance for the silt curtain deployed on site to ensure the effectiveness of the mitigation measure. A joint meeting for the complaint was held amongst the EPD, WDII RSS team, the ET and the Contractor of HK/2012/08 on 24 November 2015 and a joint silt curtain diver inspection check amongst EPD, ET, IEC, WDII RSS and the Contractor was conducted on 27 November 2015 to confirm the silt curtain condition and the silt curtain deployed at the HKCEC2 water channel was found generally in order.	
160413 (HK201208)	13 April 2016	A public complaint referred by EPD was received by ET on 13 April 2016 (EPD Ref.: H05/RS/00008367-16 dated 13 April 2016)	Outside the Hong Kong Academy for Performing Arts	Muddy water discharge from construction site	A public complaint regarding muddy water discharge referred by EPD was received by ET on 13 April 2016 (EPD Ref.: H05/RS/00008367-16 dated 13 April 2016). The complainant reported that muddy water was discharged from the construction work of Contract HK/2012/08 to the sea outside the Hong Kong Academy for Performing Arts on 13 April 2016 morning. ET confirmed with the Resident Site Staff that internal transport of soil to the hopper barge for storage via landing barge was conducted by Contractor of HK/2012/08 during 0800 hours to 1000 hours on 13 April 2016 at the sea outside the concerned location and 3 nos. of dump trucks were deployed for the operation. Protection measure including provision of sandbag bunding along the side of the landing barge was implemented by the Contractor of HK/2012/08. According to the relevant site records provided by RSS, internal transport of soil to the hopper barge for storage via landing barge was conducted by Contractor of HK/2012/08 during 0800 hours to 1000 hours on 13	Interim investigation report was submitted to the EPD on 21 April 2016. EPD advised no further comment on 6 June 2016 on the interim report submitted and case closed.

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
					April 2016 at the sea outside the concerned location and 3 nos. of dump trucks were deployed for the operation. Protection measure including provision of sandbag bunding along the side of the landing barge was implemented by the Contractor of HK/2012/08. In addition, amber rainstorm warning signal was hoisted from 0630 hours to 1200 hours on 13 April 2016 and during the above time period, muddy water was observed from the upstream of culvert L outside the HK/2012/08 site. Follow up inspection was conducted on 19 April 2016, protection measures including provision of sandbag bunding along the side of the landing barge was implemented and no mud or soil deposition was observed along the seawall and no discharge point was located within the temporary water channel connecting the Culvert L outfall location to the Victoria Harbour. In addition, piling works was observed at the north side of Zone A1 on 19 April 2016 and construction effluent collection from piling work via sedimentation tank to wastewater treatment facility was implemented and steel barrier was installed around the piling works area to mitigate against potential surface runoff related impact. Nevertheless, in view of the public concern, the Contractor was reminded to maintain adequate perimeter embankment protection along the seawall boundary and maintain proper construction effluent collection system to avoid potential runoff related impact to nearby waters.	
160706	30 June 2016	A public complaint referred by EPD was received by ET on 06 July	Construction area near Royal Hong Kong Yacht Club	Derrick barge moored near Royal Hong Kong Yacht Club emitted dark smoke since mid of June 2016.	A public complaint referred by EPD was received by ET on 06 July 2016 (Case Ref.: H05/RS/0016226-16). The complainant reported that a derrick barge in green colour under Contract HY/2009/15 moored near Royal Hong Kong Yacht Club emitted dark smoke since mid of June 2016.	Interim report was submitted to EPD on 14 July 2016.

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
		2016 (Case Ref:. H05/RS/00016 226-16),			ET confirmed with Resident Site Staff that the concerned green derrick barge was identified as Yue Fat 206 (YF 206) and the concerned green derrick barge was operated within the Ex-PCWA area for excavation works intermittently across the period from 15 June 2016 to 30 June 2016. The concerned green derrick barge YF206 within Ex-PCWA area was no longer deployed under Contract HY/2009/15 after 02 July 2016. Follow-up inspection was conducted on 11 July 2016, the concerned derrick barge YF206 was not deployed at the concerned location and no dark smoke was observed from other derrick barge operating on-site. Nevertheless, in view of the public concern, the Contractor of HY/2009/15 was reminded to conduct regular checking and maintenance of all derrick barges deployed on site to ensure only well maintained equipment is used to avoid potential dark smoke emission affect nearby surroundings.	EPD advised no further comment on 20 September 2016 on the interim report submitted and case closed.

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
160825	25 August 2016	A public complaint referred by EPD was received by ET on 25 August 2016 (Case Ref.: H08/RS/00012592-16)	East of Temporary Reclamation Zone TS3, Causeway Bay Typhoon Shelter	Muddy water was observed at Causeway Bay Typhoon Shelter	A public complaint referred by EPD was received on 25 August 2016 (Case Ref.: H08/RS/00012592-16). The complainant reported that muddy water was observed at Causeway Bay Typhoon Shelter. ET confirmed with the Resident Site Staff that no marine construction activities were undertaken at the concerned location at East of Temporary Reclamation Zone TS3 within Causeway Bay Typhoon Shelther from 14:00hrs to 17:00hrs on 25 May 2016. Site control measures including the following were implemented by the Contractor of HY/2010/08 around the concerned location. Site control measures including i) Wastewater treatment facilities (AquaSed) were installed at TS3 for treatment of wastewater generated during construction activities. Sampling of effluent from AquaSed was conducted by the Contractor of HY/2010/08 and all results complied with the requirements in the Discharge Licence. Visual inspection and pH measurement of effluent were conducted daily by Environmental Supervisors and all results passed. ii) Brick/ earth/ sandbag bunds were installed alongside the site perimeter of TS3 to prevent muddy runoff into the sea. iii) Piping with idled ends were removed to prevent accidental discharge of untreated wastewater. iv) Diver inspection for silt curtains and/ or impermeable barriers was conducted on an ad-hoc basis. vii) Temporary cut slopes were shotcreted or properly covered with tarpaulin sheets. viii) Regular inspections were conducted by the RSS and Contractor's environmental representatives on regular basis on the conditions of mitigation measures implemented on site. Based on the complainant photo information, the exposed soil slope at Temporary Reclamation Zone TS3 were observed protected by covering and enclosed by double layer of impermeable barrier/ silt curtain and no contaminated discharge was identified. In addition, based on information from Hong Kong Observatory, the tidal condition on 25 May 2016 afternoon was found to	The Interim investigation report was submitted to EPD on 2 September 2016. EPD advised no further comment on 31 October 2016 on the interim report submitted and case closed.

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
					be ebb-tide while non construction works marine vessel movements around the identified muddy plume within Causeway Bay Typhoon Shelter was observed in the complainant photo information. Based on review on relevant records, no contaminated surface runoff and no contaminated discharge was identified at the concerned location during the environmental site inspection conducted on 25 May 2016. Follow up inspection was conducted on 31 August 2016 and seawall construction and filing works at the Temporary Reclamation Zone TS3 was observed completed. No contaminated discharge and no contaminated surface runoff was found. Nevertheless, the contractor of HY/2010/08 was reminded to maintain appropriate bunding at seawall boundary for protection against potential surface runoff related impact. Also, the Contractor of HY/2010/08 was reminded to maintain proper site drainage for effluent collection and treatment system to ensure the compliance with relevant discharge license.	

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
180625	5 June 2018	An EPD complaint was referred to the ET on 25 June 2018 (CASE Ref: H05/RS/000015459-18)	Site outside Lung Wo Road	Muddy water discharge was found at the site outside Lung Wo Road on 5 June 2018 afternoon.	An EPD complaint was referred to the ET on 25 June 2018 (CASE Ref: H05/RS/000015459-18). The complainant reported that muddy water discharge was found at the site outside Lung Wo Road on 5 June 2018 afternoon. ET confirmed with the Resident Site Staff that installation of metal formwork at seawall was carried out on 5 June 2018 afternoon and mitigation measure including placing rock fill material on slope surface was implemented at the concerned location to reduce surface runoff. Follow up site inspection was conducted by the Environmental Team on 26 June 2018, no muddy water discharge or surface runoff related water quality impact was observed at construction area under HK/2012/08 near the concerned area Nevertheless, in view of the public concern, the Contractor of HK/2012/08 was reminded to provide addition tarpaulin covering to the slope surface along the seawall around the concerned location to reduce the potential surface runoff and maintain regular checking on the embankment condition to ensure no gap / void to avoid potential seepage / surface runoff to nearby water	The interim report will be submitted to EPD on 4 July 2018. EPD advised no comment on 28 September 2018 on the interim investigation report and case closed.

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
180625	11 June 2018	An EPD complaint was referred to the ET on 25 June 2018 (CASE Ref: H05/RS/00015 954-18).	Construction Site near Wan Chai Pier	Construction dust and muddy water discharge was found at the site near Wan Chai Pier on 11 June 2018 afternoon.	ET confirmed with the Resident Site Staff that marine construction activity of removal of TWCR4 and stockpile of fill material at WCR3 Area were conducted under the Contractor of HK/2009/02 on 11 June 2018 afternoon. The Contractor of HK/2009/02 reported that double silt curtain was in place as mitigation measures during the marine activity and regular spraying water was provided as dust mitigation measures at WCR3 Area. Follow-up inspection was conducted on 28 June 2018, excavation works was observed at WCR3 Area and mitigation measures including watering during excavation was generally in place. Other dust mitigation measure includes covering the stockpile material and watering the dusty surface and haul road were generally in place. No particular dust impact was observed. No muddy water discharge or surface runoff related water quality monitoring impact was observed at Contract HK/2009/02 site area. Mitigation measures for marine activity includes providing double layers of silt curtain to enclose the marine activity area was generally in place and additional tarpaulin was provided to cover the temporary cut slope to avoid the potential surface runoff. In view of the public concern, the Contractor of HK/2009/02 was reminded to keep review the performance of dust mitigation measures including watering during excavation and material handling, covering the stockpile material and watering the dusty surface and haul road to avoid potential dust impact and minimize any potential dust impact to the surroundings. The Contractor of HK/2009/02 was also reminded to maintain regular checking on the embankment, silt curtain and tarpaulin condition to ensure no gap / void to avoid potential water quality related impact.	The interim report will be submitted to EPD on 4 July 2018. EPD advised no comment on 28 September 2018 on the interim investigation report and case closed.

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
190116	12 January 2019	An EPD complaint was referred to the ET on 16 January 2019 (CASE Ref: H08/RS/00001 488-19, H08/RS/00001 532-19, and H08/RS/00001 663-19).	Victoria Harbour near Causeway Bay Typhoon Shelter	Milky water discharge was found at the Victoria Harbour, near Causeway Bay Typhoon Shelter on 12 January 2019	ET confirmed with the WDII Resident Site Staff that the concerned area was located out of the site area of Contract No. HK/2009/02 and the Contractor of HK/2009/02 had no activity at the area concerned on 12 January 2019. ET confirmed with the CWB Resident Site Staff that no construction works was conducted by the contractor of HY/2010/08 at Victoria Harbour, near Causeway Bay Typhoon Shelter on 12 January 2019 at around noon. Despite no construction activity was conducted under Contract HK/2009/02 and HY/2010/08 on the concerned date and location as confirmed with corresponding Resident Site Staff, in view of public concern, the Contractor of Contract HK/2009/02 and HY/2010/08 were reminded to review the on-site drainage system and the operation of wastewater treatment system. The Contractor of Contract HK/2009/02 and HY/2010/08 were also reminded to provide mitigation measure such as deployment of silt curtain to enclose the works area if any marine activity to be conducted at the concerned area.	The interim report will be submitted to EPD on 24 January 2019. EPD adived no comment on 12 February 2019 on the interim report submitted and case closed.

Appendix 10.1

Construction Programme of Individual Contracts

俊和－中國中鐵聯營
CHUN WO – CRGL JOINT VENTURE

Wan Chai Development Phase II - East
Central - Wan Chai Bypass at Wan Chai
Contract: HK/2009/02
Remaining Works Programme

Legend
Original Programme Period as in version date 11/12/18
Extendedl Programme Period as in this version date 21/1/19

Create Date : 21/1/2019
Revised Date : 25/1/2019
28/1/2019
30/1/2019
1/2/2019

項目	工序
1	Removal of Temporary Storage of Backfill material at Portion 5
2	Seawall海床
3	地面壆仔& 100mm Subbase
4	舊直升機場,海壆及梯台
5	打D-Wall
6	U Channel & 沙井
7	渠坭& 沙井
8	IRRIGATION PIPE
9	Fresh Water Main
10	HHR 馬路
10.1	HHR FLYOVER REMAINING WORK
11	還原運盛街 Stage 0.5
12	博覽道東,WCR1 & WCR3 未完成工作

Jan-19 | Week 54 | Week 55 | Week 56 | Week 01 | Week 02 | We
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13

1 Portion 5 運泥回填 WCR1
停止運泥因為Close P5 Exit
Portion 5 運泥回填 WCR1
2 填G400石面及執斜水(800m3)
夾泥至原海床
驗收 HIS
echo
3 做壆仔
4 舊直升機場Landing
清場
入機
打 pipe
清場
5 打D區D-Wall至+1.5 (48M)
回填
掘泥
打B區remaining D-Wall至+1.5 (15M)
回填
6 打culvert頂石屎
北面東段4個catchpit和300U渠 (103m)
DN8.1 DN8.2
DN8.3
清場
DN8.6
Culvert東邊3個catchpit和300U渠
Culvert東
DN8.5
北面西段1個catchpit和300,375U渠(56m)
北面中段300U渠
DN1.1
北面中段
375U to
Formation Drainage Works adjacent to Area 7(2個catchpit和300/450U渠)
C1.3 DN1.2
BACKFILL
7 沙井 7356 and 7349
225坭由DN8.6至7349
225坭由D
225坭由7356和7349至BCO
CCTV 7352, 7340, 7328, 7327
試氣 7353,7339, C1.3
CCTV 734
試氣 735
8 subsoil dra填泥
WWW542 (21/12/18)
WSD approval of design
WWW046報開工
9 TTA approved
in TMLG Meeting 5/12/18
Excavati
10 FOOTPATH ALONG HHR
FOOTPATH
AREA ABCD remove PMSMA
Relay Area ABCD PMSMA
waiting core test result
AREA E remove and relay BC+PMSMA
waiting core test result
AREA F remove and relay BC+PMSMA
survey
REMEDIAL TO CONCRETE LAYBY
remdeial to concrete layby
10.1 VO258 MODIFICATION WORK AT ABUTMENT ROOM
place order and delivery
delivery
VO253 PROVIDE STAINLESS STEEL LADDER AT ABUTMENT ROOM
11
12 EVA
清石屎
執formation
* Portion 2 Zone 1
清場
打路面石屎
升井蓋
subase
* Zone 2a upto end of EVA
升井蓋
打石屎
kerb
執formation
執format
* Zone 2a remaining area
升井蓋
* Portion 2 Zone 2b
打石屎
執formation
subas
REMEDIAL TO EXPO DRIVE COVERED WALKWAY
拆竹棚
WCR3 填 Sub Base (100mm thk 7000m²)
subase
拆沈渠池
拆沈渠池
Caisson seawall defects
resumption of a monitoring point WCR3-1
海龍明珠如下COPING (COMMENCEMENT DATE TO BE CONFIRMED)
WCR1&3 MAKE GOOD ARMOUR SLOPE PROFILE

俊和－中國中鐵聯營
CHUN WO – CRGL JOINT VENTURE

Wan Chai Development Phase II - East

Central - Wan Chai Bypass at Wan Chai

Contract: HK/2009/02

Remaining Works Programme

項目	工序
1	Removal of Temporary Storage of Backfill material at Portion 5
2	Seawall海床
3	地面壆仔& 100mm Subbase
4	舊直升機場,海壆及梯台
5	打D-Wall
6	U Channel & 沙井
7	渠坭& 沙井
8	IRRIGATION PIPE
9	Fresh Water Main
10	HHR 馬路
10.1	HHR FLYOVER REMAINING WORK
11	還原運盛街 Stage 0.5
12	博覽道東,WCR1 & WCR3 未完成工作

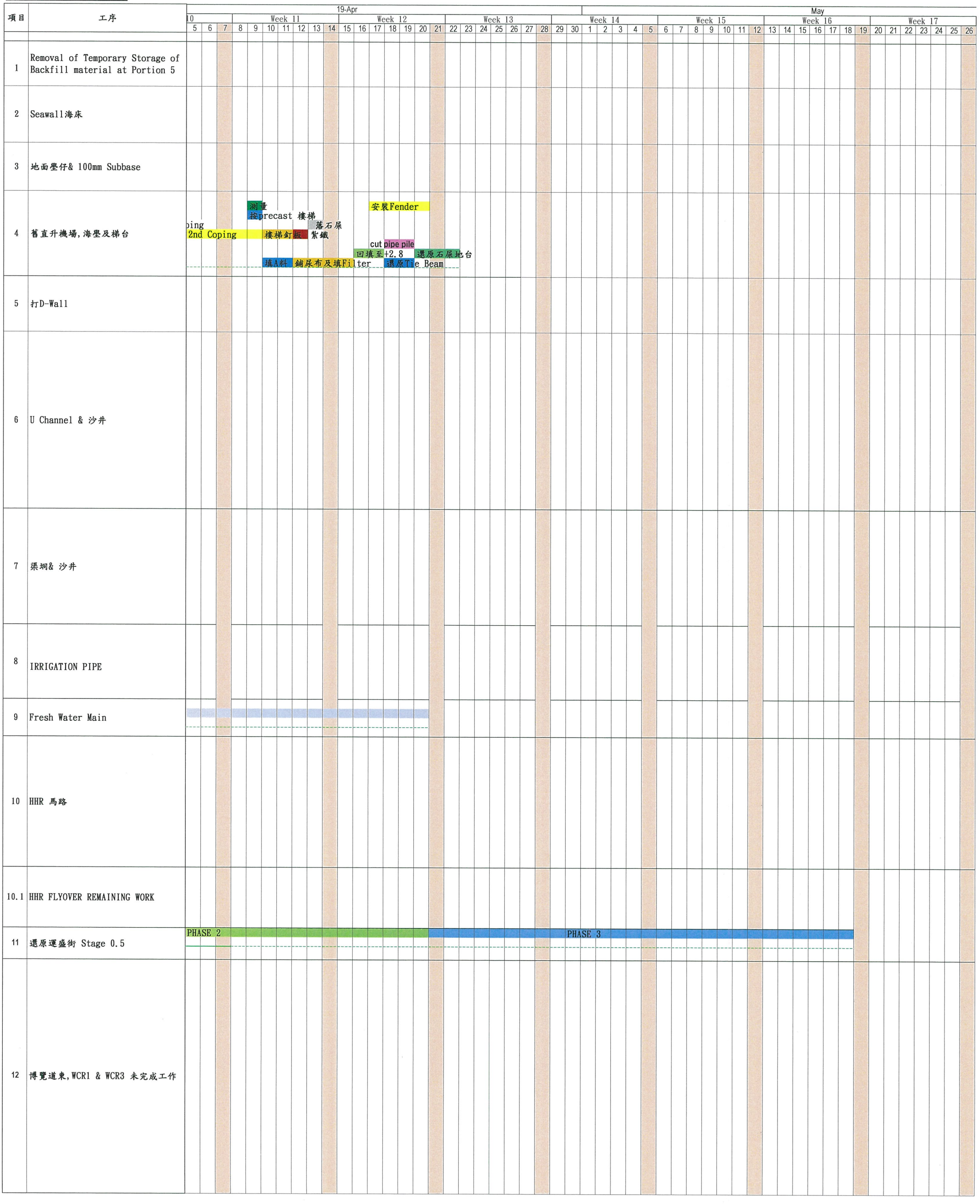
Feb-19 | Week 03 | Week 04 | Week 05 | Week 06 | Week 07 | Week 08 | Week 09 | 19-Mar | Week

14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4

m block(488 Nos) 0.5 Armour(800m3)
夾剩餘泥至原海床
到Armour
填石仔(1600m³) (Whole Portion 3&4)
第二浸 第四浸磚
Rockfill Level 第一浸磚 第三浸 第五浸磚
pile CAPING BEAM 拆舊海磚(70粒)及挖泥 測量 測、驗、驗、驗、驗、驗、驗收 填A料 鋪尿布及 填坭至+1. 1st Sea Wall Co
測量 測量
到Precast Unit
4個catchpit和300U渠(103m)
DN8.4
邊3個catchpit和300U渠(120m)
DN8.6 DN8.7
300U渠(60m)
DN1.2 (60m)
BACKFILL
N8.3至7356(24m)
回填
49,7356
50
淋花水3個WATER POINT & PLANTER&150U
WATER METER BOX M01
WWW046 WSD approval
WWW046報完工
PLANTER淋花水喉
STAGE 1 TTA (HHR) + HY19 AECOM OFFICE (notional, to be confirmed)
STAGE 2 TTA (HHR)
on for footing and end blocks
place order and delivery of the steel barrier
ALONG HHR
Installation of precast end block
concreting of footing
Installation of barrier
OPENING OF HHR (notional, to be confirmed)
waiting core test result
carry out work
install ladder
還原運盛街 Stage 0.5 (notional, to be confirmed)
PHASE 1
(notional, to be confirmed)
subase * The area of zone 1, 2a and 2b shall read in conjuction with sketch SK3213D
驗收
subase
ion驗收
kerb 打石屎 執formation subase
驗收
HANDOVER OF EVA (notional, to be confirmed)
WCR3 圍鐵網 (150M) (TBC (Alignment)
subase
拆鐵閘
還原行人路 (to be confirmed)
WCR 1&3 Make good Armour Slope Profiles

俊和－中國中鐵聯營
CHUN WO – CRGL JOINT VENTURE

Wan Chai Development Phase II - East
Central - Wan Chai Bypass at Wan Chai
Contract: HK/2009/02
Remaining Works Programme

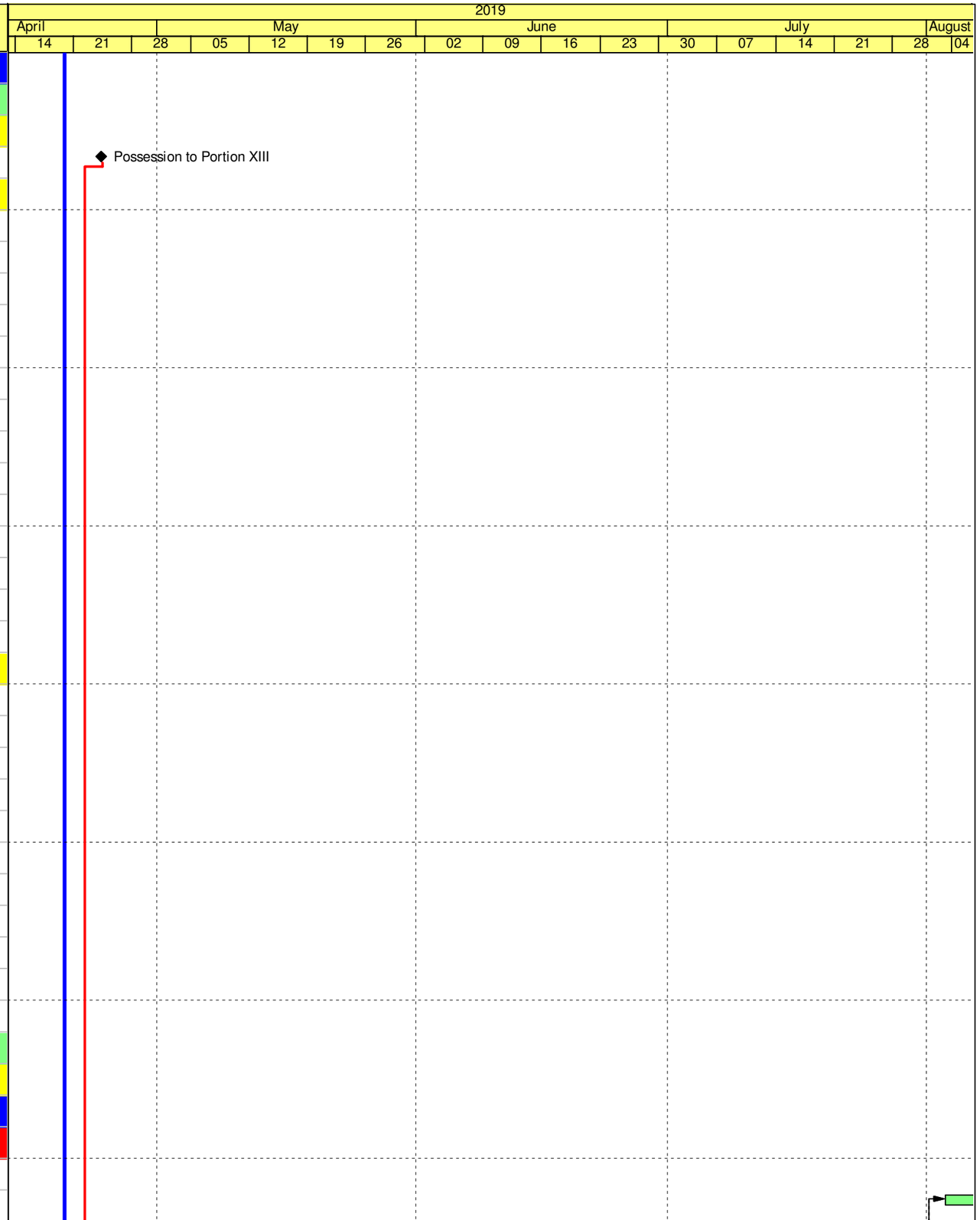


俊和－中國中鐵聯營
CHUN WO – CRGL JOINT VENTURE

Wan Chai Development Phase II - East
Central - Wan Chai Bypass at Wan Chai
Contract: HK/2009/02
Remaining Works Programme

項目	工序	June																														
		Week 18							Week 19							Week 20							Week 21							Week 22						
		27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Removal of Temporary Storage of Backfill material at Portion 5																																			
2	Seawall海床																																			
3	地面壆仔& 100mm Subbase																																			
4	舊直升機場,海壆及梯台																																			
5	打D-Wall																																			
6	U Channel & 沙井																																			
7	渠坭& 沙井																																			
8	IRRIGATION PIPE																																			
9	Fresh Water Main																																			
10	HHR 馬路																																			
10.1	HHR FLYOVER REMAINING WORK																																			
11	還原運盛街 Stage 0.5																																			
12	博覽道東,WCR1 & WCR3 未完成工作																																			

Activity ID	Activity Name	Rem Dur	Start	Finish
3MRP (2019.04.20)				
01 - CONTRACT DATES				
01.2 - Possession of Site				
0120-3600	Possession to Portion XIII	0	24-Apr-19*	
01.3 - Handback to Employer				
0130-2400	Handover Portion XIIA (KD14+28d) (29Dec2015)	0		23-Jan-20*
0130-2500	Handover Portion XIIC (KD1+28 d) (21Aug2016)	0		12-Nov-19*
0130-2600	Handover Portion XIIB (KD16+28d) (25May2017)	0		21-Feb-20*
0130-2700	Handover Portion VI (KD10+28d) (25May2017)	0		21-Feb-20*
0130-2800	Handover Portion IA (KD11+28d) (25May2017)	0		21-Feb-20*
0130-2900	Handover Portion VIIA (KD11+28d) (25May2017)	0		21-Feb-20*
0130-3000	Handover Portion X (KD11+28d) (25May2017)	0		21-Feb-20*
0130-3100	Handover Portion III (KD12+28d) (25May2017)	0		21-Feb-20*
0130-3200	Handover Portion VA (KD12+28d) (25May2017)	0		21-Feb-20*
0130-3300	Handover Portion VC (KD12+28d) (25May2017)	0		21-Feb-20*
0130-3400	Handover Portion IVA (KD13+28d) (25May2017)	0		21-Feb-20*
0130-3500	Handover Portion IIA (KD15+28d) (25May2017)	0		23-Oct-19*
0130-3600	Handover Portion IIB (KD15+28d) (25May2017)	0		23-Oct-19*
0130-3700	Handover Portion XIII (KD16+28d) (25May2017)	0		21-Feb-20*
01.4 - Key Dates				
0140-0900	KD1 - Completion of Section X of the Works (24Jul2016)(SA>17Sept2017)	0		15-Oct-19*
0140-1800	KD14 - Completion of Section 11 of the Works (01Dec2015)(SA>1Dec2015)	0		26-Dec-19*
0140-2000	KD10 - Completion of Section 7 of the Works (27Apr2017)(SA>22Jun2018)	0		24-Jan-20
0140-2100	KD11 - Completion of Section 8 of the Works (27Apr2017)(SA>22Jun2018)	0		24-Jan-20
0140-2200	KD12 - Completion of Section 9 of the Works (27Apr2017)(SA>22Jun2018)	0		24-Jan-20
0140-2300	KD13 - Completion of Section 10 of the Works (27Apr2017)(SA>22Jun2018)	0		24-Jan-20
0140-2400	KD15 - Completion of Section 12 of the Works (27Apr2017)(SA>22Jun2018)	0		25-Sep-19
0140-2500	KD16 - Completion of Section 13 of the Works (27Apr2017)(SA>22Jun2018)	0		24-Jan-20
0140-2600	KD19 - Completion of Section 14 of the Works (27Apr2017)(SA>22Jun2018)	0		24-Jan-20
0140-2700	KD17 - Completion of Section 13A of the Works (27Apr2018)(SA>22Jun2019)	0		23-Jan-21
0140-2800	KD18 - Completion of Section 13B of the Works (27Apr2018)(SA>22Jun2019)	0		23-Jan-21
10 - SECTION X OF THE WORKS				
10.3 - Middle Bridge (Bridge F)				
10.3.2 - Bridge Construction				
Outstanding Works				
1032-4400	Corbel Const & Replacement of Temporary Lighting to Permanent at F4-F5	50	09-Aug-19	09-Oct-19
1032-4400A	Corbel Const & Replacement of Temporary Lighting to Permanent at F4-F5 (Nightwork)	5	03-Aug-19	08-Aug-19



Remaining Level of Effort
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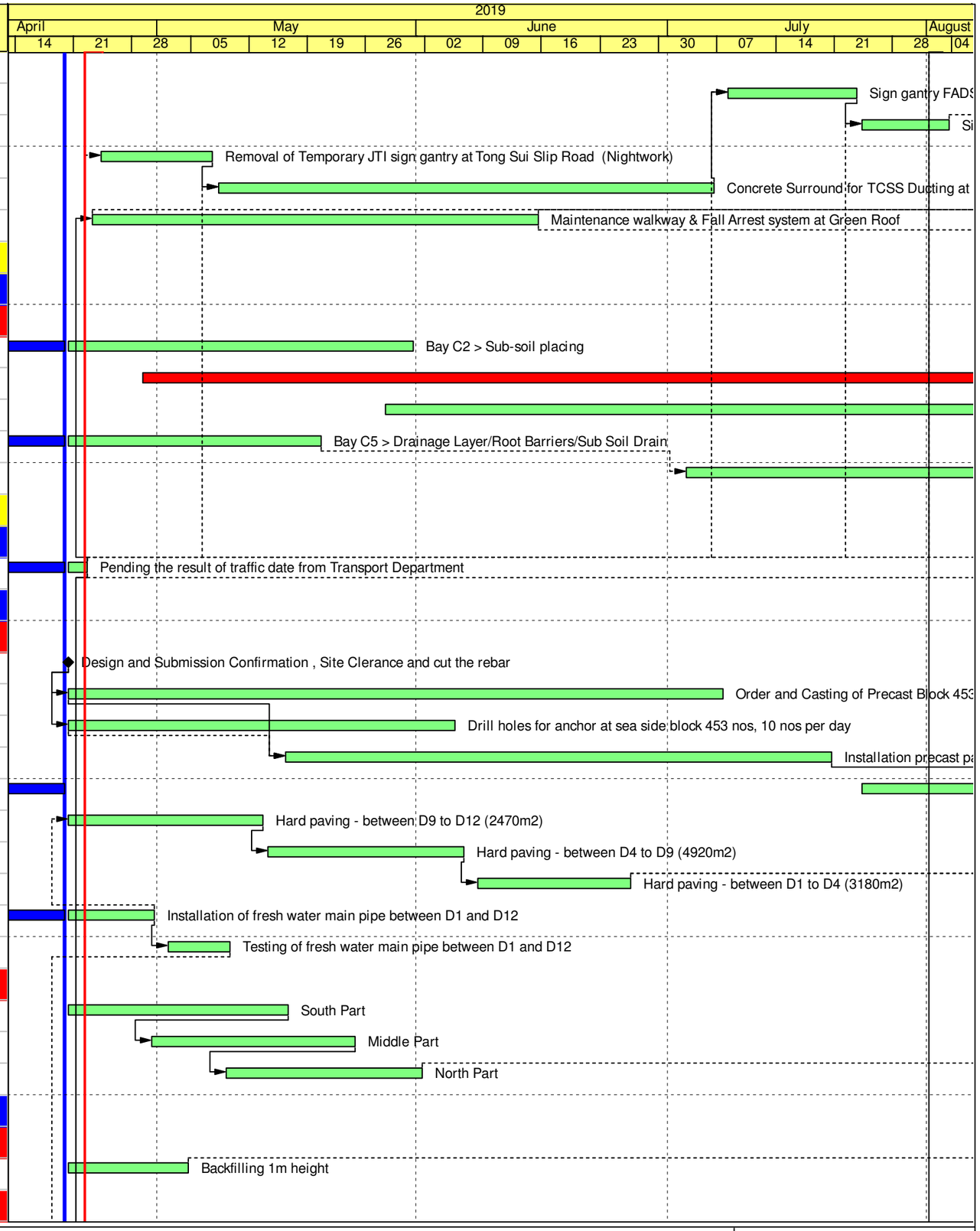
Contract HY/2009/19
Three Months Rolling Programme (20.Apr.2019 to 20.Jul.2019)

Activity ID	Activity Name	Rem Dur	Start	Finish
1032-4400B	Corbel Const & Replacement of Temporary Lighting to Permanent at F4-F5 (Nightwork)	5	10-Oct-19	15-Oct-19
1032-4440	Sign gantry FADS07 and ADS07 installation at W/B (Nightwork)	14	08-Jul-19*	23-Jul-19
1032-4460	Sign face FADS08A installation at E/B F8 (Nightwork)	10	24-Jul-19	03-Aug-19
1032-4480	Removal of Temporary JTI sign gantry at Tong Sui Slip Road (Nightwork)	11	24-Apr-19*	07-May-19
1032-4500	Concrete Surround for TCSS Ducting at Existing IEC bridge 8 bays (Nightwork)	50	08-May-19*	06-Jul-19
1032-4520	Maintenance walkway & Fall Arrest system at Green Roof	45	23-Apr-19	15-Jun-19
10.6 - Tunnel Approach Ramp				
10.6.1 - Approach Ramp (Excluding Portion IIB)				
Landscape Deck				
1061-7560	Bay C2 > Sub-soil placing	34	29-Mar-19 A	31-May-19
1061-7700	Bay C3 > Sub-soil placing	95	29-Apr-19*	20-Aug-19
1061-7740	Bay C4 > Sub-soil placing	95	28-May-19*	18-Sep-19
1061-7760	Bay C5 > Drainage Layer/Root Barriers/Sub Soil Drain	24	04-Apr-19 A	20-May-19
1061-7780	Bay C5 > Sub-soil placing	110	03-Jul-19*	11-Nov-19
10.7 - Section X - Miscellaneous Works				
10.7.1 - TTM Stages				
1071-1800	Pending the result of traffic date from Transport Department	3	24-Feb-19 A	22-Apr-19*
10.7.3 - Open Area				
Precast Parapet and Hard Paving Works Along Sea Wall				
1073-1000	Design and Submission Confirmation , Site Clerance and cut the rebar	0		20-Apr-19*
1073-1040	Order and Casting of Precast Block 453 nos x 1.5m long (680m) , 1st 90 nos 1 month production, 12 day per 90 nos	79	20-Apr-19	07-Jul-19
1073-1080	Drill holes for anchor at sea side block 453 nos, 10 nos per day	38	20-Apr-19	05-Jun-19
1073-1120	Installation precast parapet, 6 nos per day	55	16-May-19	20-Jul-19
1073-1160	Hard paving - between AD1 to D1 (5850m2)	24	12-Nov-18 A	20-Aug-19
1073-1200	Hard paving - between D9 to D12 (2470m2)	18	20-Apr-19 A	13-May-19
1073-1240	Hard paving - between D4 to D9 (4920m2)	21	14-May-19	06-Jun-19
1073-1280	Hard paving - between D1 to D4 (3180m2)	16	08-Jun-19	26-Jun-19
1073-1320	Installation of fresh water main pipe between D1 and D12	8	08-Apr-19 A	30-Apr-19
1073-1340	Testing of fresh water main pipe between D1 and D12	7	02-May-19	09-May-19
Masking Wall to D12				
1073-1500	South Part	21	20-Apr-19*	16-May-19
1073-1540	Middle Part	21	30-Apr-19	24-May-19
1073-1580	North Part	21	09-May-19	01-Jun-19
10.7.4 - Outstanding Drainage Works				
Near Pier D12 to Pier D7 from Pier D9-D12				
1073-2520	Backfilling 1m height	11	20-Apr-19	04-May-19
Bet Pier D19-D26 - West of SR13 to Box Culvert (to commence after removal of girder)				



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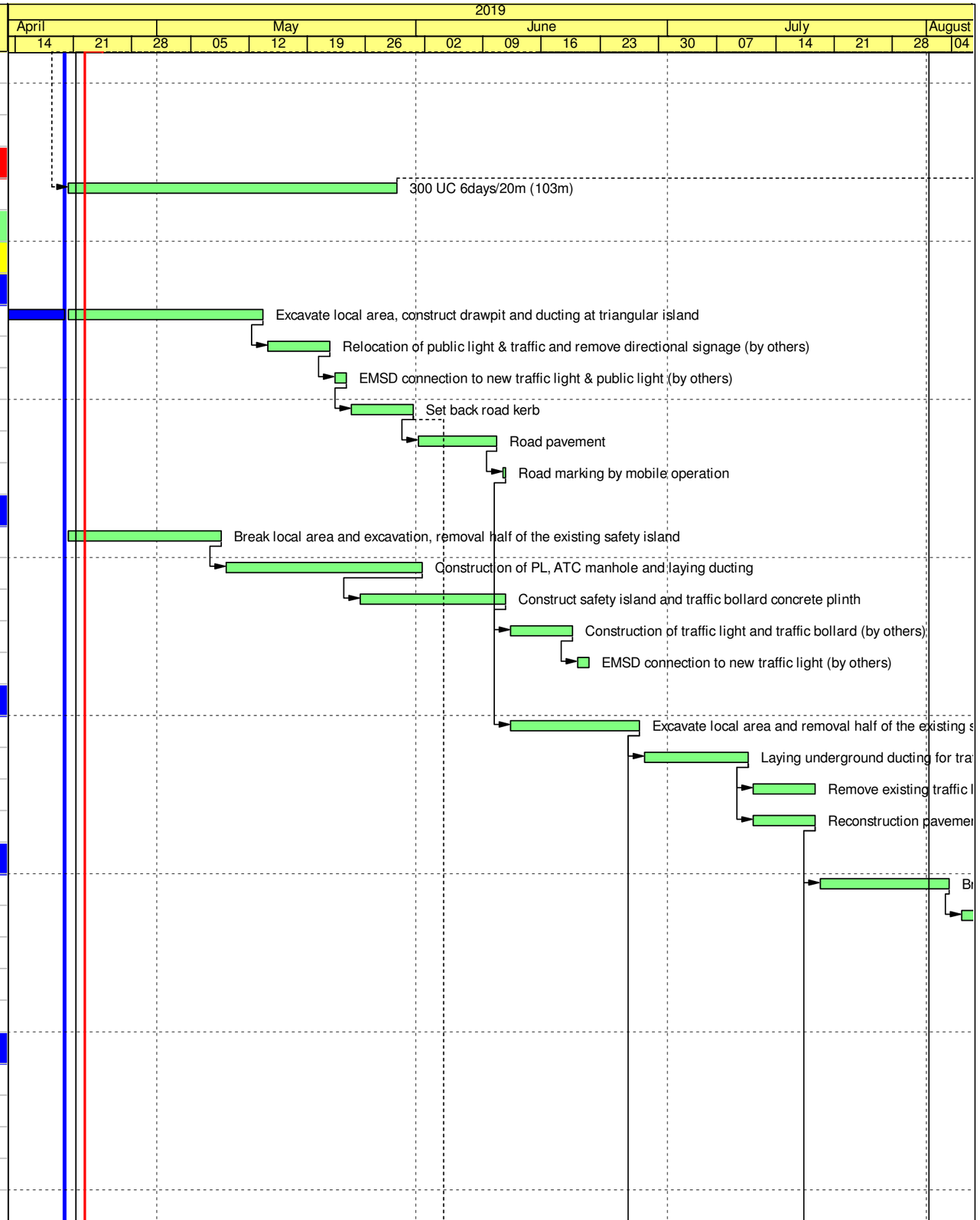
Contract HY/2009/19
Three Months Rolling Programme (20.Apr.2019 to 20.Jul.2019)

Activity ID	Activity Name	Rem Dur	Start	Finish
1073-2760	225 U Channel (4days/20m) (110m)	24	26-Aug-19*	23-Sep-19
1073-2800	Drain pit to Sand Trap with 225 pipe (10m)	5	24-Sep-19	28-Sep-19
1073-2840	Sand Trap to Box ,225 pipe (6m)	6	30-Sep-19	08-Oct-19
Bet Pier P28-P35 - ADB area (to commence after LJV works - Jan 2019)				
1073-3480	300 UC 6days/20m (103m)	32	20-Apr-19 A	29-May-19
11 - SECTION 11 OF THE WORKS				
11.4- Hing Fat Street				
Stage 1C				
1140-1420	Excavate local area, construct drawpit and ducting at triangular island	18	16-Mar-19 A	13-May-19
1140-1430	Relocation of public light & traffic and remove directional signage (by others)	7	14-May-19 A	21-May-19
1140-1440	EMSD connection to new traffic light & public light (by others)	2	22-May-19	23-May-19
1140-1450	Set back road kerb	7	24-May-19	31-May-19
1140-1460	Road pavement	7	01-Jun-19	10-Jun-19
1140-1470	Road marking by mobile operation	1	11-Jun-19	11-Jun-19
Stage 2A				
1140-1500	Break local area and excavation, removal half of the existing safety island	14	20-Apr-19 A	08-May-19
1140-1510	Construction of PL, ATC manhole and laying ducting	21	09-May-19 A	01-Jun-19
1140-1520	Construct safety island and traffic bollard concrete plinth	14	25-May-19	11-Jun-19
1140-1530	Construction of traffic light and traffic bollard (by others)	7	12-Jun-19	19-Jun-19
1140-1540	EMSD connection to new traffic light (by others)	2	20-Jun-19	21-Jun-19
Stage 2B				
1140-1600	Excavate local area and removal half of the existing safety island	14	12-Jun-19	27-Jun-19
1140-1610	Laying underground ducting for traffic light and public light	10	28-Jun-19	10-Jul-19
1140-1620	Remove existing traffic light and bollard (by others)	7	11-Jul-19	18-Jul-19
1140-1630	Reconstruction pavement & road marking	7	11-Jul-19	18-Jul-19
Stage 3				
1140-1700	Breaking local area and excavation	14	19-Jul-19	03-Aug-19
1140-1710	Laying underground ducting for traffic light and public light	10	05-Aug-19	15-Aug-19
1140-1720	Construction of PL and E&M manhole	7	16-Aug-19	23-Aug-19
1140-1730	Construct new safety island (Portion)	7	24-Aug-19	31-Aug-19
1140-1740	Reconstruction pavement & road marking	7	02-Sep-19	09-Sep-19
Stage 4				
1140-1800	Breaking local area and excavation	14	10-Sep-19	26-Sep-19
1140-1810	Laying underground ducting for traffic light and public light	10	27-Sep-19	10-Oct-19
1140-1820	Construct safety island (remaining) and traffic bollard concrete plinth	14	08-Oct-19	23-Oct-19
1140-1830	Reconstruction pavement & road marking	7	24-Oct-19	31-Oct-19
1140-1840	Install traffic light and traffic bollard (by others)	7	01-Nov-19	08-Nov-19



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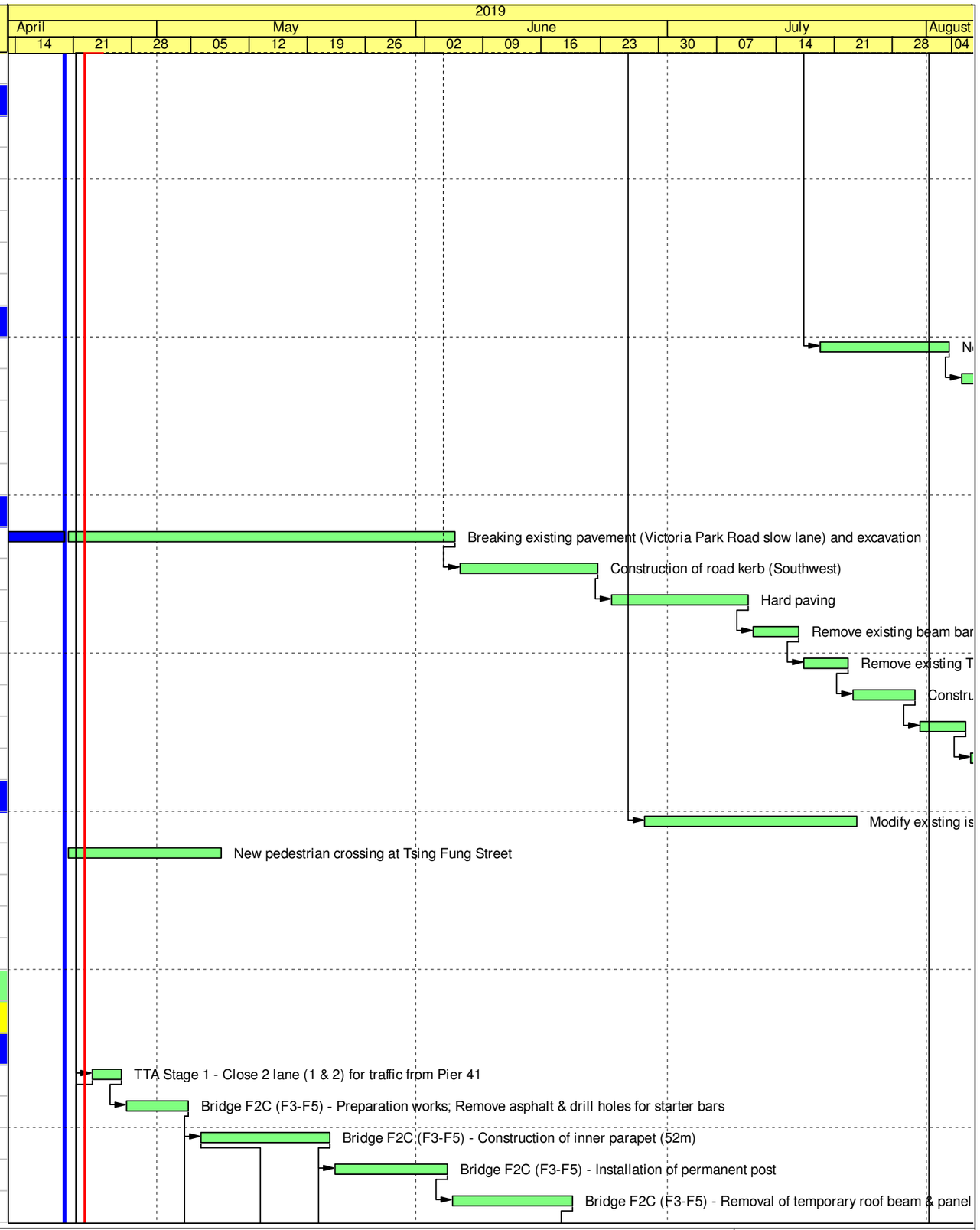
Contract HY/2009/19
Three Months Rolling Programme (20.Apr.2019 to 20.Jul.2019)

Activity ID	Activity Name	Rem Dur	Start	Finish
1140-1850	EMSD connection to temp traffic light (by others)	2	09-Nov-19	11-Nov-19
Stage 5				
1140-1900	Breaking local area and excavation	14	12-Nov-19	27-Nov-19
1140-1910	Laying underground ducting for traffic light and public light	10	28-Nov-19	09-Dec-19
1140-1920	Construction ATC drawpit at triangular island	5	10-Dec-19	14-Dec-19
1140-1930	Reconstruction pavement & road marking	7	16-Dec-19	23-Dec-19
1140-1940	EMSD connection to traffic light and public light (by others)	2	24-Dec-19	26-Dec-19
1140-1950	Remove existing gully and construct new gully (Portion)	14	28-Nov-19	13-Dec-19
Triangular Island at Junction of Tsing Fung Street				
1140-2000	New kerb construction	14	19-Jul-19 A	03-Aug-19
1140-2010	Remove and construction of gully & manhole	16	05-Aug-19	22-Aug-19
1140-2020	Modify and construct planter wall	14	23-Aug-19	07-Sep-19
1140-2030	Beam barrier construction	5	09-Sep-19	13-Sep-19
1140-2040	Planting	45	09-Sep-19	02-Nov-19
Triangular Island at Junction of Wing Hing Street				
1140-2100	Breaking existing pavement (Victoria Park Road slow lane) and excavation	38	21-Jan-19 A	05-Jun-19
1140-2110	Construction of road kerb (Southwest)	14	06-Jun-19 A	22-Jun-19
1140-2120	Hard paving	14	24-Jun-19	10-Jul-19
1140-2130	Remove existing beam barrier	5	11-Jul-19	16-Jul-19
1140-2140	Remove existing Type 2 railing	5	17-Jul-19	22-Jul-19
1140-2150	Construct beam barrier and Type 2 railing	7	23-Jul-19	30-Jul-19
1140-2160	Construction of traffic bollard concrete plinth	5	31-Jul-19	05-Aug-19
1140-2170	Reinstate directional sign (by others)	30	06-Aug-19	09-Sep-19
Other Areas				
1140-2200	Modify existing island near Gordon Road	21	28-Jun-19	23-Jul-19
1140-2210	New pedestrian crossing at Tsing Fung Street	14	20-Apr-19*	08-May-19
1140-2220	Realignment of kerb along Hing Fat Street between Wing Hing Street and Tsing Fung Street	10	01-Nov-19	12-Nov-19
1140-2230	Remove existing gully and construct new gully (remaining)	11	13-Nov-19	25-Nov-19
1140-2250	Construction of Type 2 railing	14	07-Nov-19	22-Nov-19
12 - SECTION 7, 8, 9, 10 & 12 OF THE WORKS				
12.1 - Permanent Noise Mitigation Measures				
West Bound Brigde Between F2 to C2 (P40 to P22) (parapet mould 1)				
1210-1000	TTA Stage 1 - Close 2 lane (1 & 2) for traffic from Pier 41	4	23-Apr-19*	26-Apr-19
1210-1040	Bridge F2C (F3-F5) - Preparation works; Remove asphalt & drill holes for starter bars	6	27-Apr-19	04-May-19
1210-1080	Bridge F2C (F3-F5) - Construction of inner parapet (52m)	14	06-May-19	21-May-19
1210-1120	Bridge F2C (F3-F5) - Installation of permanent post	12	22-May-19	04-Jun-19
1210-1160	Bridge F2C (F3-F5) - Removal of temporary roof beam & panel	12	05-Jun-19	19-Jun-19



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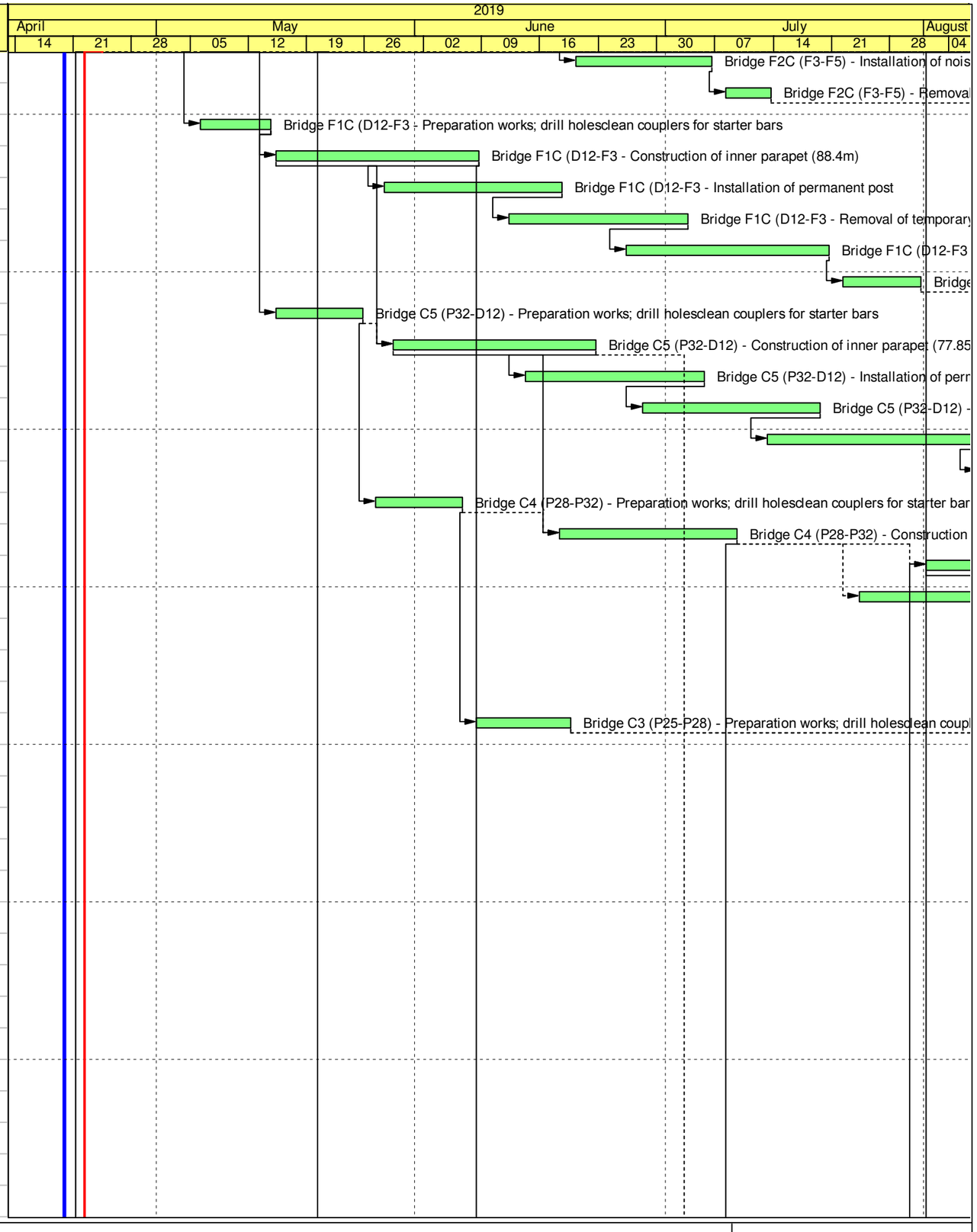
Contract HY/2009/19
Three Months Rolling Programme (20.Apr.2019 to 20.Jul.2019)

Activity ID	Activity Name	Rem Dur	Start	Finish
1210-1200	Bridge F2C (F3-F5) - Installation of noise side panel (from existing), gutter & down pipe	14	20-Jun-19	06-Jul-19
1210-1240	Bridge F2C (F3-F5) - Removal of temporary post & bolts	6	08-Jul-19	13-Jul-19
1210-1320	Bridge F1C (D12-F3 - Preparation works; drill holesclean couplers for starter bars	8	06-May-19	14-May-19
1210-1360	Bridge F1C (D12-F3 - Construction of inner parapet (88.4m)	21	15-May-19	08-Jun-19
1210-1400	Bridge F1C (D12-F3 - Installation of permanent post	18	28-May-19	18-Jun-19
1210-1440	Bridge F1C (D12-F3 - Removal of temporary roof beam & panel	18	12-Jun-19	03-Jul-19
1210-1480	Bridge F1C (D12-F3 - Installation of noise side panel (from existing), gutter & down pipe	21	26-Jun-19	20-Jul-19
1210-1520	Bridge F1C (D12-F3 - Removal of temporary post & bolts	9	22-Jul-19	31-Jul-19
1210-1560	Bridge C5 (P32-D12) - Preparation works; drill holesclean couplers for starter bars	10	15-May-19	25-May-19
1210-1600	Bridge C5 (P32-D12) - Construction of inner parapet (77.85m)	21	29-May-19	22-Jun-19
1210-1640	Bridge C5 (P32-D12) - Installation of permanent post	18	14-Jun-19	05-Jul-19
1210-1680	Bridge C5 (P32-D12) - Removal of temporary roof beam & panel	18	28-Jun-19	19-Jul-19
1210-1720	Bridge C5 (P32-D12) - Installation of noise side panel (from existing), gutter & down pipe	21	13-Jul-19	06-Aug-19
1210-1760	Bridge C5 (P32-D12) - Removal of temporary post & bolts	9	07-Aug-19	16-Aug-19
1210-1800	Bridge C4 (P28-P32) - Preparation works; drill holesclean couplers for starter bars	10	27-May-19	06-Jun-19
1210-1840	Bridge C4 (P28-P32) - Construction of inner parapet (111.88m) - section 1	18	18-Jun-19	09-Jul-19
1210-1860	Bridge C4 (P28-P32) - Construction of inner parapet (111.88m) - section 2	10	01-Aug-19	12-Aug-19
1210-1880	Bridge C4 (P28-P32) - Installation of permanent post	24	24-Jul-19	20-Aug-19
1210-1920	Bridge C4 (P28-P32) - Removal of temporary roof beam & panel	24	10-Aug-19	06-Sep-19
1210-1960	Bridge C4 (P28-P32) - Installation of noise side panel (from existing), gutter & down pipe	28	31-Aug-19	04-Oct-19
1210-2000	Bridge C4 (P28-P32) - Removal of temporary post & bolts	10	05-Oct-19	17-Oct-19
1210-2040	Bridge C3 (P25-P28) - Preparation works; drill holesclean couplers for starter bars	10	08-Jun-19	19-Jun-19
1210-2080	Bridge C3 (P25-P28) - Construction of inner parapet (83.88m)	28	13-Aug-19	13-Sep-19
1210-2120	Bridge C3 (P25-P28) - Installation of permanent post	24	03-Sep-19	02-Oct-19
1210-2160	Bridge C3 (P25-P28) - Removal of temporary roof beam & panel	24	25-Sep-19	24-Oct-19
1210-2200	Bridge C3 (P25-P28) - Installation of noise side panel (from existing), gutter & down pipe	21	18-Oct-19	11-Nov-19
1210-2240	Bridge C3 (P25-P28) - Removal of temporary post & bolts	10	12-Nov-19	22-Nov-19
1210-2280	Bridge C2 (P25-P22) - Preparation works; Remove asphalt & drill holes for starter bars	6	28-Oct-19	02-Nov-19
1210-2320	Bridge C2 (P25-P22) - Construction of inner parapet (83.62m)	28	04-Nov-19	05-Dec-19
1210-2360	Bridge C2 (P25-P22) - Installation of permanent post	18	25-Nov-19	14-Dec-19
1210-2400	Bridge C2 (P25-P22) - Removal of temporary roof beam & panel	18	09-Dec-19	30-Dec-19
1210-2440	Bridge C2 (P25-P22) - Installation of noise side panel (from existing), gutter & down pipe	21	23-Dec-19	17-Jan-20
1210-2480	Bridge C2 (P25-P22) - Removal of temporary post & bolts	9	08-Jan-20	17-Jan-20
1210-2520	Bridge C1 (P22-P20) - Preparation works; Remove asphalt & drill holes for starter bars	10	04-Nov-19	14-Nov-19
1210-2560	Bridge C1 (P22-P20) - Construction of inner parapet (54.8m)	14	25-Nov-19	10-Dec-19
1210-2600	Bridge C1 (P22-P20) - Installation of permanent post	12	07-Dec-19	20-Dec-19
1210-2640	Bridge C1 (P22-P20) - Removal of temporary roof beam & panel	12	18-Dec-19	02-Jan-20



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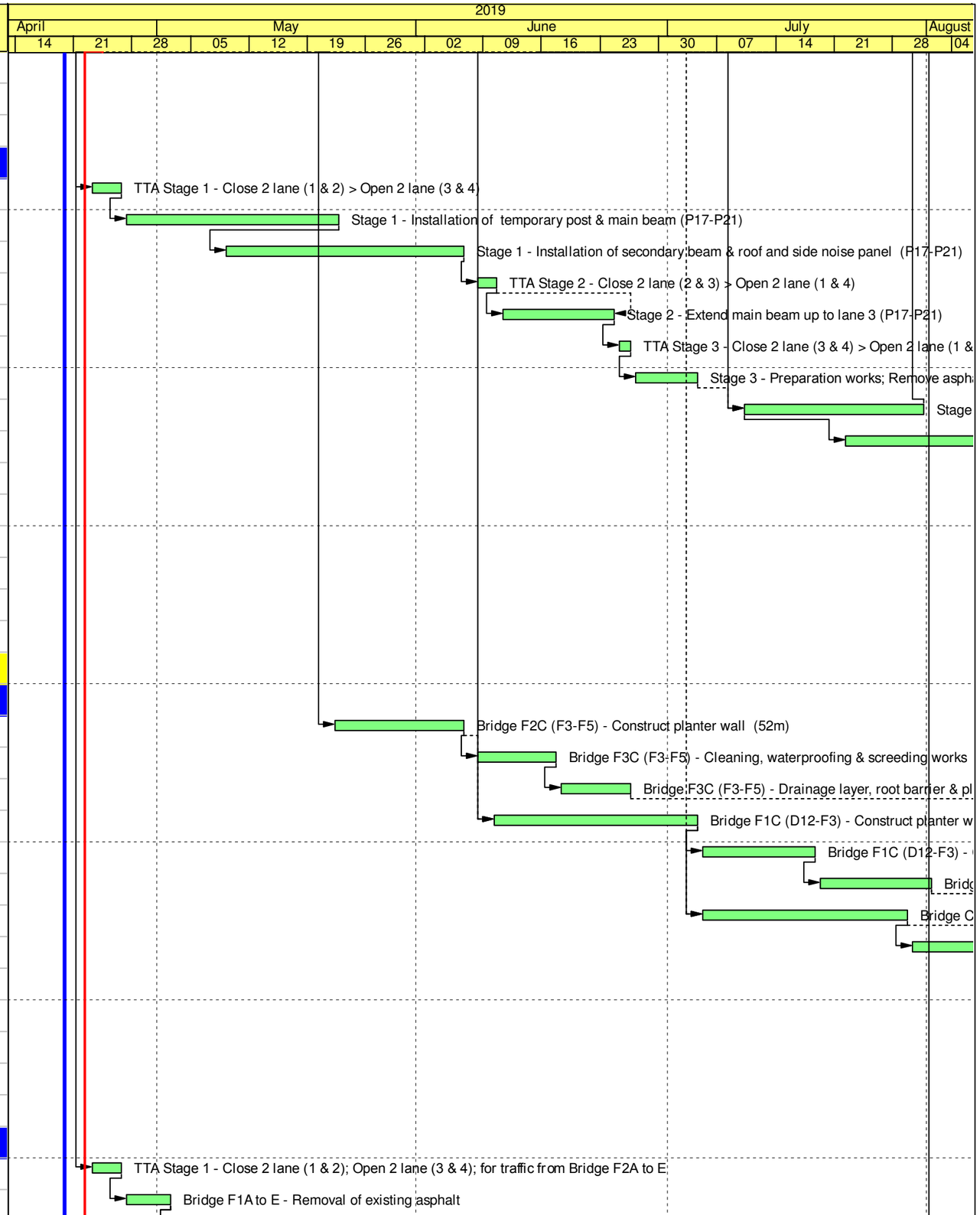
Contract HY/2009/19
Three Months Rolling Programme (20.Apr.2019 to 20.Jul.2019)

Activity ID	Activity Name	Rem Dur	Start	Finish
1210-2680	Bridge C1 (P22-P20) - Installation of noise side panel (from existing), gutter & down pipe	14	30-Dec-19	15-Jan-20
1210-2720	Bridge C1 (P22-P20) - Removal of temporary post & bolts	6	09-Jan-20	15-Jan-20
1210-2760	Reinstatement of Pavings & Markings	5	18-Jan-20	23-Jan-20
Bridge C1 (P17 to P21)				
1210-3000	TTA Stage 1 - Close 2 lane (1 & 2) > Open 2 lane (3 & 4)	4	23-Apr-19	26-Apr-19
1210-3120	Stage 1 - Installation of temporary post & main beam (P17-P21)	21	27-Apr-19	22-May-19
1210-3240	Stage 1 - Installation of secondary beam & roof and side noise panel (P17-P21)	25	09-May-19	06-Jun-19
1210-3280	TTA Stage 2 - Close 2 lane (2 & 3) > Open 2 lane (1 & 4)	2	08-Jun-19	10-Jun-19
1210-3320	Stage 2 - Extend main beam up to lane 3 (P17-P21)	12	11-Jun-19	24-Jun-19
1210-3360	TTA Stage 3 - Close 2 lane (3 & 4) > Open 2 lane (1 & 2)	2	25-Jun-19	26-Jun-19
1210-3400	Stage 3 - Preparation works; Remove asphalt & drill holes for starter bars (P17-P21)	6	27-Jun-19	04-Jul-19
1210-3440	Stage 3 - Construction of parapet (P21-P17)(111.52m)	19	10-Jul-19	31-Jul-19
1210-3480	Stage 3 - Installation of permanent post & main beam (P21-P17)	25	22-Jul-19	19-Aug-19
1210-3520	TTA Stage 4 - Close 2 lane (2 & 3) > Open 2 lane (1 & 4)	2	20-Aug-19	21-Aug-19
1210-3560	Stage 4 - Installation of secondary beam & noise panel (P17-P21)	25	22-Aug-19	20-Sep-19
1210-3600	Stage 4 - Remove temporary post (P17-P21)	18	22-Aug-19	11-Sep-19
1210-3640	TTA Stage 5 - Close 2 lane (3 & 4) > Open 2 lane (1 & 2)	2	21-Sep-19	23-Sep-19
1210-3680	Stage 5 - Installation of secondary beam & noise panel (P17-P21)	25	24-Sep-19	24-Oct-19
1210-3800	TTA Stage 6 - Close 2 lane (1 & 2) > Open 2 lane (3 & 4)	2	25-Oct-19	26-Oct-19
12.2 - Viaduct Planters & Maintenance Access				
West Bound Brigde Between F2 to C4 (P40 to P28)				
1220-1000	Bridge F2C (F3-F5) - Construct planter wall (52m)	14	22-May-19	06-Jun-19
1220-1040	Bridge F3C (F3-F5) - Cleaning, waterproofing & screeding works	8	08-Jun-19	17-Jun-19
1220-1080	Bridge F3C (F3-F5) - Drainage layer, root barrier & placing planter sub-soil	8	18-Jun-19	26-Jun-19
1220-1200	Bridge F1C (D12-F3) - Construct planter wall (88.4m)	21	10-Jun-19	04-Jul-19
1220-1240	Bridge F1C (D12-F3) - Cleaning, waterproofing & screeding works	12	05-Jul-19	18-Jul-19
1220-1280	Bridge F1C (D12-F3) - Drainage layer, root barrier & placing planter sub-soil	12	19-Jul-19	01-Aug-19
1220-1400	Bridge C5 (P32-D12) - Construct planter wall (77.85m)	21	05-Jul-19	29-Jul-19
1220-1440	Bridge C5 (P32-D12) - Cleaning, waterproofing & screeding works	12	30-Jul-19	12-Aug-19
1220-1480	Bridge C5 (P32-D12) - Drainage layer, root barrier & placing planter sub-soil	12	13-Aug-19	26-Aug-19
1220-1600	Bridge C4 (P28-P32) - Construct planter wall (111.88m)	28	13-Aug-19	13-Sep-19
1220-1640	Bridge C4 (P28-P32) - Cleaning, waterproofing & screeding works	16	16-Sep-19	04-Oct-19
1220-1680	Bridge C4 (P28-P32) - Drainage layer, root barrier & placing planter sub-soil	16	05-Oct-19	24-Oct-19
1220-1720	West Bound - Walkway paving works	60	25-Oct-19	04-Jan-20
East Bound Brigde Between F3 to E1 (P43 to P17) (Land Side) (parapet mould 2&3)				
1220-2000	TTA Stage 1 - Close 2 lane (1 & 2); Open 2 lane (3 & 4); for traffic from Bridge F2A to E	4	23-Apr-19*	26-Apr-19
1220-2040	Bridge F1A to E - Removal of existing asphalt	4	27-Apr-19	02-May-19



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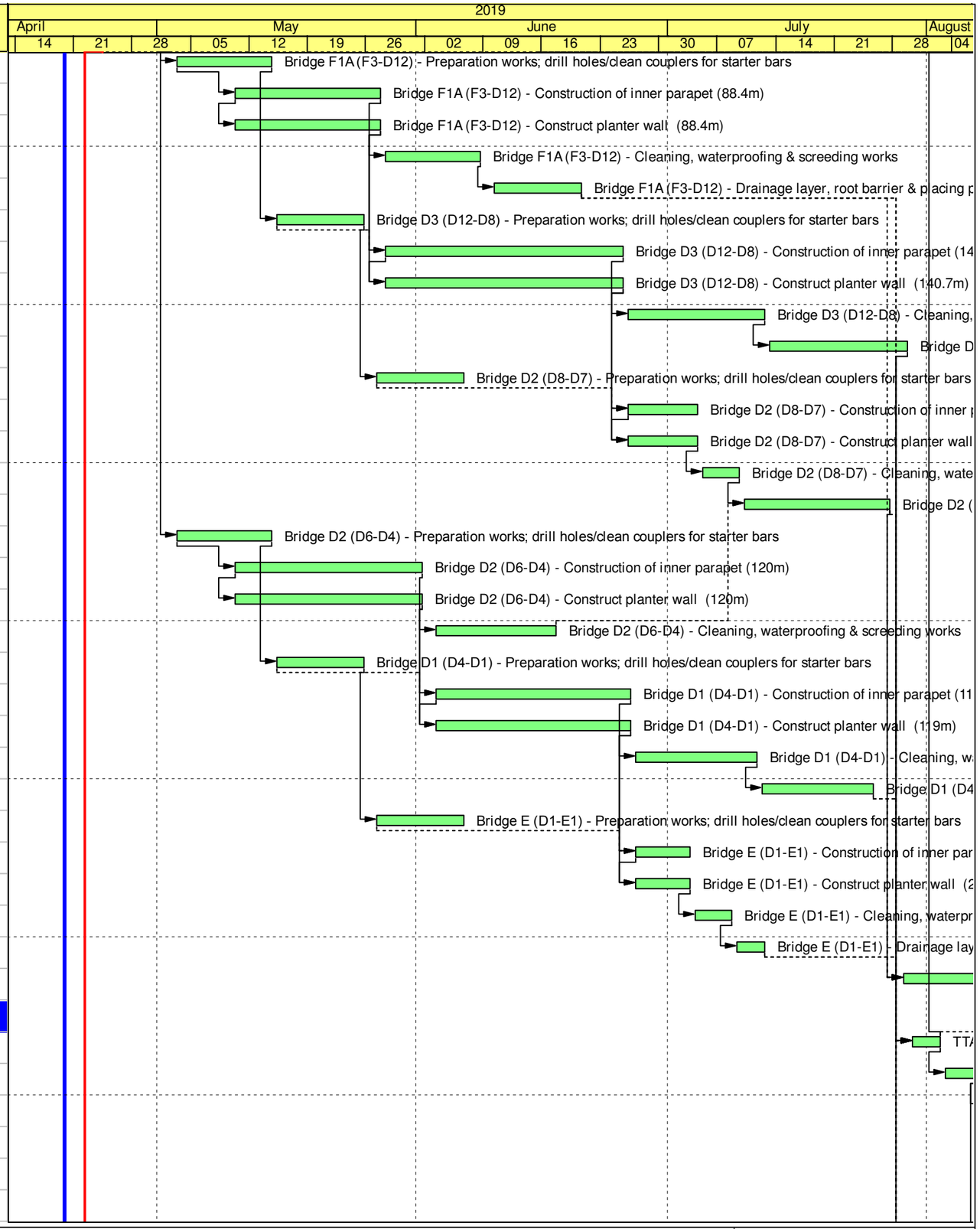
Activity ID	Activity Name	Rem Dur	Start	Finish
1220-2080	Bridge F1A (F3-D12) - Preparation works; drill holes/clean couplers for starter bars	10	03-May-19	14-May-19
1220-2120	Bridge F1A (F3-D12) - Construction of inner parapet (88.4m)	15	10-May-19	27-May-19
1220-2160	Bridge F1A (F3-D12) - Construct planter wall (88.4m)	15	10-May-19	27-May-19
1220-2200	Bridge F1A (F3-D12) - Cleaning, waterproofing & screeding works	10	28-May-19	08-Jun-19
1220-2240	Bridge F1A (F3-D12) - Drainage layer, root barrier & placing planter sub-soil	10	10-Jun-19	20-Jun-19
1220-2280	Bridge D3 (D12-D8) - Preparation works; drill holes/clean couplers for starter bars	10	15-May-19	25-May-19
1220-2320	Bridge D3 (D12-D8) - Construction of inner parapet (140.7m)	24	28-May-19	25-Jun-19
1220-2360	Bridge D3 (D12-D8) - Construct planter wall (140.7m)	24	28-May-19	25-Jun-19
1220-2400	Bridge D3 (D12-D8) - Cleaning, waterproofing & screeding works	14	26-Jun-19	12-Jul-19
1220-2440	Bridge D3 (D12-D8) - Drainage layer, root barrier & placing planter sub-soil	14	13-Jul-19	29-Jul-19
1220-2480	Bridge D2 (D8-D7) - Preparation works; drill holes/clean couplers for starter bars	10	27-May-19	06-Jun-19
1220-2520	Bridge D2 (D8-D7) - Construction of inner parapet (40m)	7	26-Jun-19	04-Jul-19
1220-2560	Bridge D2 (D8-D7) - Construct planter wall (40m)	7	26-Jun-19	04-Jul-19
1220-2600	Bridge D2 (D8-D7) - Cleaning, waterproofing & screeding works	4	05-Jul-19	09-Jul-19
1220-2640	Bridge D2 (D8-D7) - Drainage layer, root barrier & placing planter sub-soil	16	10-Jul-19	27-Jul-19
1220-2680	Bridge D2 (D6-D4) - Preparation works; drill holes/clean couplers for starter bars	10	03-May-19	14-May-19
1220-2720	Bridge D2 (D6-D4) - Construction of inner parapet (120m)	20	10-May-19	01-Jun-19
1220-2760	Bridge D2 (D6-D4) - Construct planter wall (120m)	20	10-May-19	01-Jun-19
1220-2800	Bridge D2 (D6-D4) - Cleaning, waterproofing & screeding works	12	03-Jun-19	17-Jun-19
1220-2840	Bridge D1 (D4-D1) - Preparation works; drill holes/clean couplers for starter bars	10	15-May-19	25-May-19
1220-2880	Bridge D1 (D4-D1) - Construction of inner parapet (119m)	20	03-Jun-19	26-Jun-19
1220-2920	Bridge D1 (D4-D1) - Construct planter wall (119m)	20	03-Jun-19	26-Jun-19
1220-2960	Bridge D1 (D4-D1) - Cleaning, waterproofing & screeding works	12	27-Jun-19	11-Jul-19
1220-3000	Bridge D1 (D4-D1) - Drainage layer, root barrier & placing planter sub-soil	12	12-Jul-19	25-Jul-19
1220-3040	Bridge E (D1-E1) - Preparation works; drill holes/clean couplers for starter bars	10	27-May-19	06-Jun-19
1220-3080	Bridge E (D1-E1) - Construction of inner parapet (27m)	5	27-Jun-19	03-Jul-19
1220-3120	Bridge E (D1-E1) - Construct planter wall (27m)	5	27-Jun-19	03-Jul-19
1220-3160	Bridge E (D1-E1) - Cleaning, waterproofing & screeding works	4	04-Jul-19	08-Jul-19
1220-3200	Bridge E (D1-E1) - Drainage layer, root barrier & placing planter sub-soil	4	09-Jul-19	12-Jul-19
1220-3240	East Bound (land side) - Walkway paving works	60	29-Jul-19	09-Oct-19
East Bound Brigde Between F3 to E1 (P43 to P17) (Sea Side) (parapet mould 2&3)				
1220-3300	TTA Stage 2 - Close 2 lane (3 & 4); Open 2 lane (1 & 2); for traffic from Bridge F2A to E	4	30-Jul-19	02-Aug-19
1220-3340	Bridge F3A to E - Removal of existing asphalt	4	03-Aug-19	07-Aug-19
1220-3380	Bridge F3A (F8-F5) - Preparation works; drill holes/clean couplers for starter bars	10	08-Aug-19	19-Aug-19
1220-3420	Bridge F3A (F8-F5) - Construction of inner parapet (92m)	16	15-Aug-19	02-Sep-19
1220-3460	Bridge F3A (F8-F5) - Construct planter wall (92m)	16	15-Aug-19	02-Sep-19
1220-3500	Bridge F3A (F8-F5) - Cleaning, waterproofing & screeding works	11	03-Sep-19	16-Sep-19



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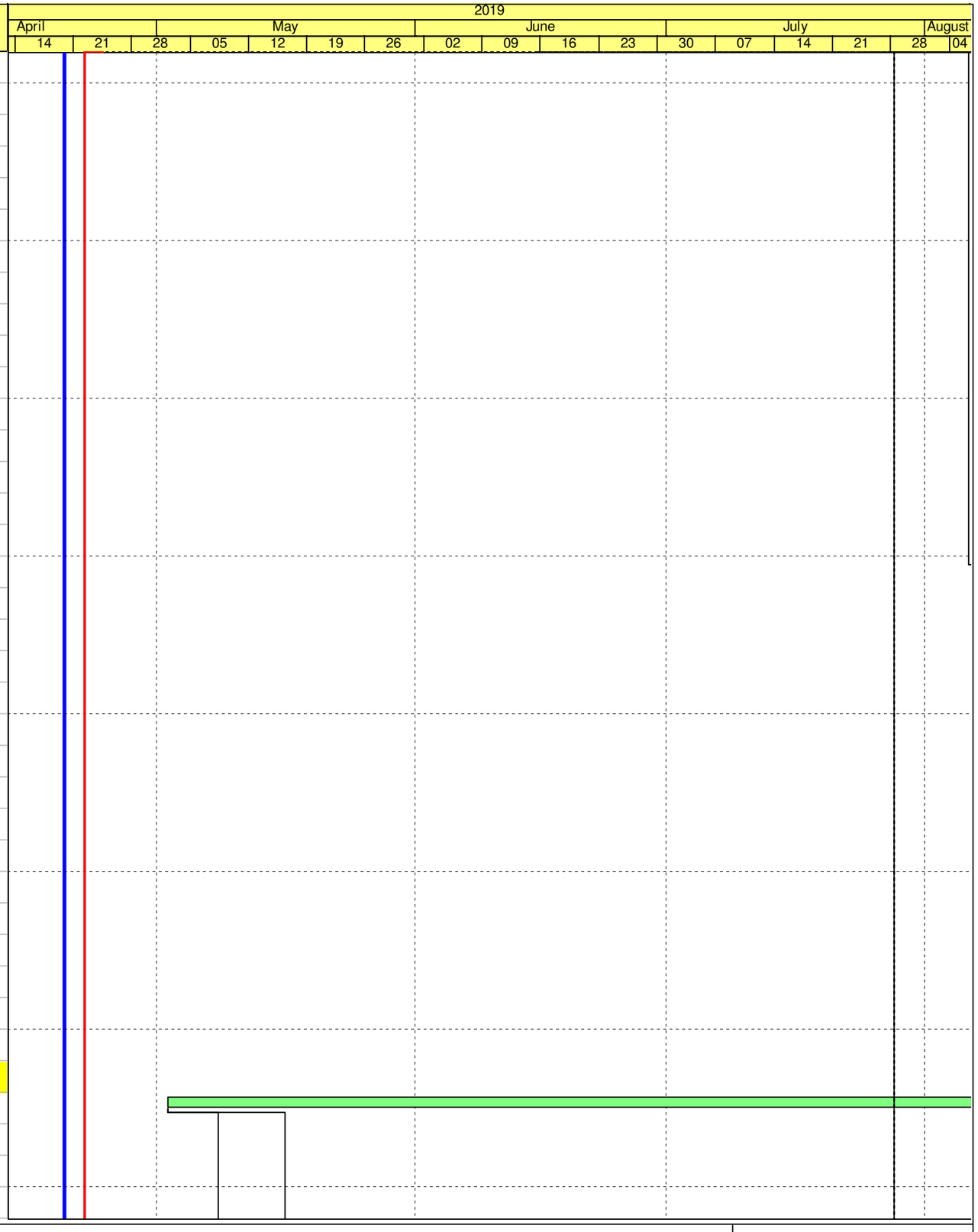
Activity ID	Activity Name	Rem Dur	Start	Finish
1220-3540	Bridge F3A (F8-F5) - Drainage layer, root barrier & placing planter sub-soil	11	17-Sep-19	28-Sep-19
1220-3580	Bridge F2A (F5-F3) - Preparation works; drill holes/clean couplers for starter bars	10	20-Aug-19	30-Aug-19
1220-3620	Bridge F2A (F5-F3) - Construction of inner parapet (52m)	9	03-Sep-19	12-Sep-19
1220-3660	Bridge F2A (F5-F3) - Construct planter wall (52m)	9	03-Sep-19	12-Sep-19
1220-3700	Bridge F2A (F5-F3) - Cleaning, waterproofing & screeding works	8	13-Sep-19	23-Sep-19
1220-3720	Bridge F2A (F5-F3) - Drainage layer, root barrier & placing planter sub-soil	8	24-Sep-19	03-Oct-19
1220-3760	Bridge F1A (F3-D12) - Preparation works; drill holes/clean couplers for starter bars	10	31-Aug-19	11-Sep-19
1220-3800	Bridge F1A (F3-D12) - Construction of inner parapet (88.4m)	15	13-Sep-19	02-Oct-19
1220-3840	Bridge F1A (F3-D12) - Construct planter wall (88.4m)	15	13-Sep-19	02-Oct-19
1220-3880	Bridge F1A (F3-D12) - Cleaning, waterproofing & screeding works	10	03-Oct-19	15-Oct-19
1220-3920	Bridge F1A (F3-D12) - Drainage layer, root barrier & placing planter sub-soil	10	16-Oct-19	26-Oct-19
1220-4020	Bridge D3 (D12-D8) - Preparation works; drill holes/clean couplers for starter bars	10	12-Sep-19	24-Sep-19
1220-4060	Bridge D3 (D12-D8) - Construction of inner parapet (140.65m)	24	03-Oct-19	31-Oct-19
1220-4100	Bridge D3 (D12-D8) - Construct planter wall (140.65m)	24	03-Oct-19	31-Oct-19
1220-4140	Bridge D3 (D12-D8) - Cleaning, waterproofing & screeding works	15	01-Nov-19	18-Nov-19
1220-4180	Bridge D3 (D12-D8) - Drainage layer, root barrier & placing planter sub-soil	15	19-Nov-19	05-Dec-19
1220-4220	Bridge D2 (D8-D4) - Preparation works; drill holes/clean couplers for starter bars	10	08-Aug-19	19-Aug-19
1220-4260	Bridge D2 (D8-D4) - Construction of inner parapet (160m)	28	15-Aug-19	17-Sep-19
1220-4300	Bridge D2 (D8-D4) - Construct planter wall (160m)	28	15-Aug-19	17-Sep-19
1220-4340	Bridge D2 (D8-D4) - Cleaning, waterproofing & screeding works	16	18-Sep-19	08-Oct-19
1220-4380	Bridge D2 (D8-D4) - Drainage layer, root barrier & placing planter sub-soil	16	09-Oct-19	26-Oct-19
1220-4420	Bridge D1 (D4-D1) - Preparation works; drill holes/clean couplers for starter bars	10	20-Aug-19	30-Aug-19
1220-4460	Bridge D1 (D4-D1) - Construction of inner parapet (119m)	20	18-Sep-19	12-Oct-19
1220-4500	Bridge D1 (D4-D1) - Construct planter wall (119m)	20	18-Sep-19	12-Oct-19
1220-4540	Bridge D1 (D4-D1) - Cleaning, waterproofing & screeding works	9	14-Oct-19	23-Oct-19
1220-4600	Bridge D1 (D4-D1) - Drainage layer, root barrier & placing planter sub-soil	9	24-Oct-19	02-Nov-19
1220-4640	Bridge E (D1-E3) - Preparation works; drill holes/clean couplers for starter bars	10	31-Aug-19	11-Sep-19
1220-4680	Bridge E (D1-E3) - Construction of inner parapet (77m)	14	14-Oct-19	29-Oct-19
1220-4720	Bridge E (D1-E3) - Construct planter wall (77m)	14	14-Oct-19	29-Oct-19
1220-4760	Bridge E (D1-E3) - Cleaning, waterproofing & screeding works	12	30-Oct-19	12-Nov-19
1220-4800	Bridge E (D1-E3) - Drainage layer, root barrier & placing planter sub-soil	12	13-Nov-19	26-Nov-19
1220-4840	East Bound (sea side) - Walkway paving works	60	13-Nov-19	23-Jan-20
12.3 - Waterworks				
1230-1000	Irrigation System - Landscape Deck (C1 to C2)	116	02-May-19	17-Sep-19
1230-1010	Irrigation System - Landscape Deck (C3 to C5) & Green Roof	123	21-Aug-19	16-Jan-20
1230-1200	Irrigation System (Landscape Deck C1 to C2) - Testing	7	18-Sep-19	25-Sep-19
1230-1210	Irrigation System (Landscape Deck C3 to C5 & Green Roof) - Testing	7	17-Jan-20	24-Jan-20



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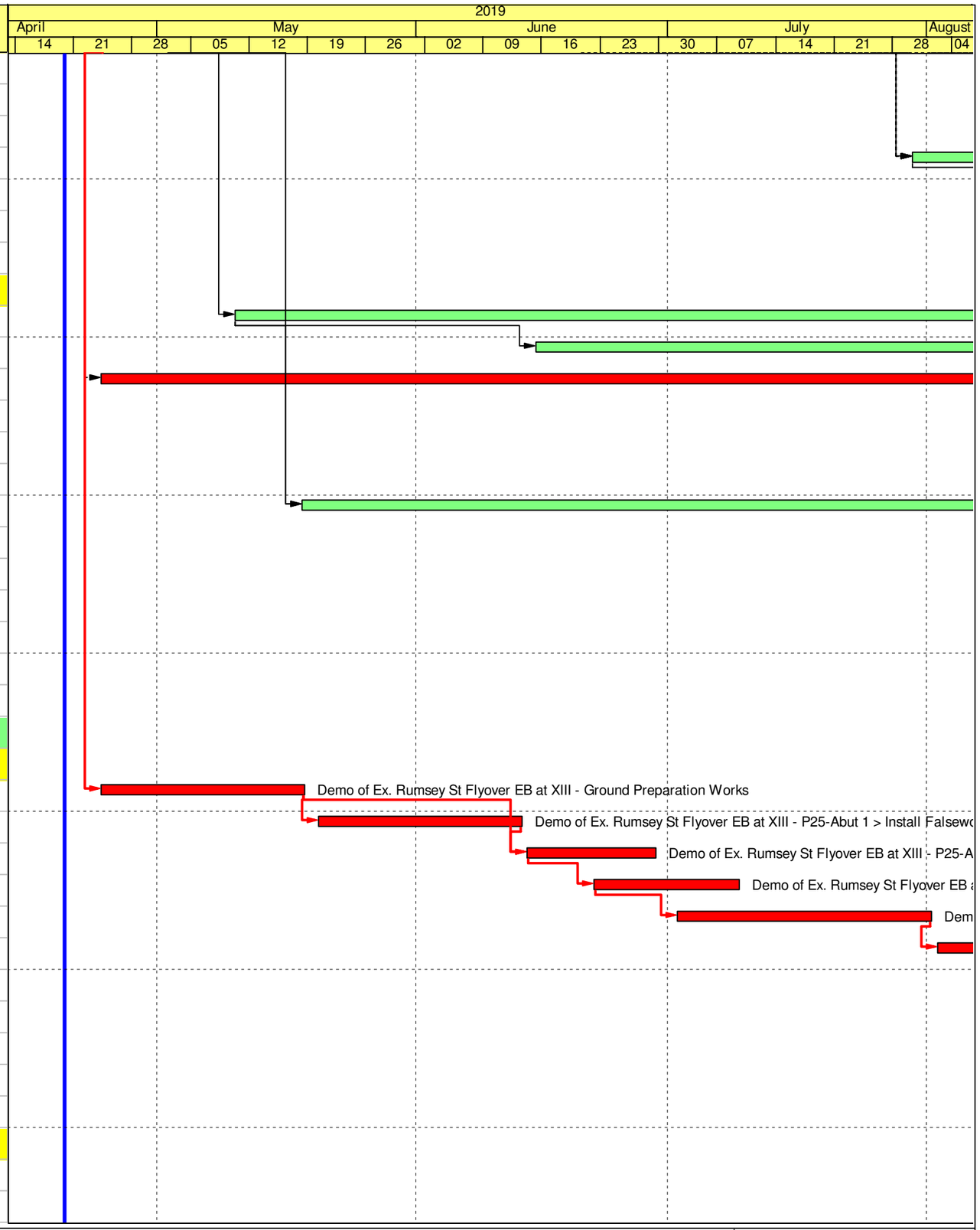
Activity ID	Activity Name	Rem Dur	Start	Finish
1230-1300	Connect to watermain for Water Supply (Landscape Deck C1 to C2) - Works carried out by WSD	7	26-Sep-19	04-Oct-19
1230-1310	Connect to watermain for Water Supply (Landscape Deck C3 to C5 & Green Roof) - Works carried out by WSD	7	28-Jan-20	04-Feb-20
1230-1500	Irrigation System - Bridge W/B - at III, IVA, VA, X	90	27-Aug-19	12-Dec-19
1230-1600	Irrigation System - Bridge E/B (land side) - at IA, III, VI, VIIA	90	30-Jul-19	14-Nov-19
1230-1650	Irrigation System - Bridge E/B (sea side) - at IA, III, VI, VIIA	90	28-Sep-19	15-Jan-20
1230-1700	Irrigation System (E/B & W/B Bridge) - Testing	7	16-Jan-20	23-Jan-20
1230-1800	Connect to watermain for Water Supply (E/B & W/B Bridge) - Works carried out by WSD	7	24-Jan-20	03-Feb-20
12.4 - Soft & Hard Landscape				
1240-1000	U Channel & Foothpath at Landscape Deck (C1 to C2)	107	10-May-19	13-Sep-19
1240-1010	U Channel & Foothpath at Landscape Deck (C3 to C5) & Green Roof	130	15-Jun-19	18-Nov-19
1240-1050	Top soil at Green Roof	150	24-Apr-19*	22-Oct-19
1240-1100	Top soil at Bridge W/B (III, IVA, VA, X)	30	18-Sep-19	24-Oct-19
1240-1200	Top soil at Bridge E/B (land side) (IA, III, VI, VIIA)	30	13-Aug-19	17-Sep-19
1240-1250	Top soil at Bridge E/B (sea side) (IA, III, VI, VIIA)	30	09-Oct-19	12-Nov-19
1240-1300	Soft Landscape at Landscape Deck (C1 to C2)	109	18-May-19	25-Sep-19
1240-1310	Soft Landscape at Landscape Deck (C3 to C5) & Green Roof	109	16-Sep-19	24-Jan-20
1240-1400	Soft Landscape at Bridge W/B (III, IVA, VA, X)	30	13-Dec-19	18-Jan-20
1240-1500	Soft Landscape at Bridge E/B (land side) (IA, III, VI, VIIA)	30	15-Nov-19	19-Dec-19
1240-1550	Soft Landscape at Bridge E/B (sea side) (IA, III, VI, VIIA)	30	18-Dec-19	23-Jan-20
1240-1600	Achieve KD10, 11, 12 & 13	0		24-Jan-20
1240-1610	Achieve KD15	0		25-Sep-19
13 - SECTION 13 OF THE WORKS				
13.2 - Roadworks				
1320-1000	Demo of Ex. Rumsey St Flyover EB at XIII - Ground Preparation Works	21	24-Apr-19	18-May-19
1320-1040	Demo of Ex. Rumsey St Flyover EB at XIII - P25-Abut 1 > Install Falsework system under Ex Bridge	21	20-May-19	13-Jun-19
1320-1080	Demo of Ex. Rumsey St Flyover EB at XIII - P25-Abut 1 > Remove Ex Light Post & Destress Bdridge Deck	14	14-Jun-19	29-Jun-19
1320-1120	Demo of Ex. Rumsey St Flyover EB at XIII - P25-Abut 1 > Saw Cut Ex Deck in Sec 2.5m Width	14	22-Jun-19	09-Jul-19
1320-1160	Demo of Ex. Rumsey St Flyover EB at XIII - P25-Abut 1 > Remove Deck & Cart Away	27	02-Jul-19	01-Aug-19
1320-1240	Demo of Ex. Rumsey St Flyover EB at XIII - Pier 28 & 29> Cut & Remove Ex Pier	21	02-Aug-19	26-Aug-19
1320-1280	Demo of Ex. Rumsey St Flyover EB at XIII - Pier 28 & 29> Break & Remove Ex Pier Stub	14	23-Aug-19	07-Sep-19
1320-1320	Demo of Ex. Rumsey St Flyover EB at XIII - Abut 1-2 > Remove Ex Parapets	14	23-Aug-19	07-Sep-19
1320-1360	Demo of Ex. Rumsey St Flyover EB at XIII - Abut 1-2 > Break & Remove Ex Road Slab	21	31-Aug-19	25-Sep-19
1320-1400	Demo of Ex. Rumsey St Flyover EB at XIII -Abut 1-2 > Demolish & remove existing Abut & Retaining Wall	28	18-Sep-19	22-Oct-19
1320-1500	Planter, Lightings & Roadwork & Modification at Portion XIII	49	23-Oct-19	18-Dec-19
13.3 - Soft Landscape				
1330-1000	Soft Landscape at Portion XIII	30	19-Dec-19	24-Jan-20
1330-9000	Achieve KD16	0		24-Jan-20



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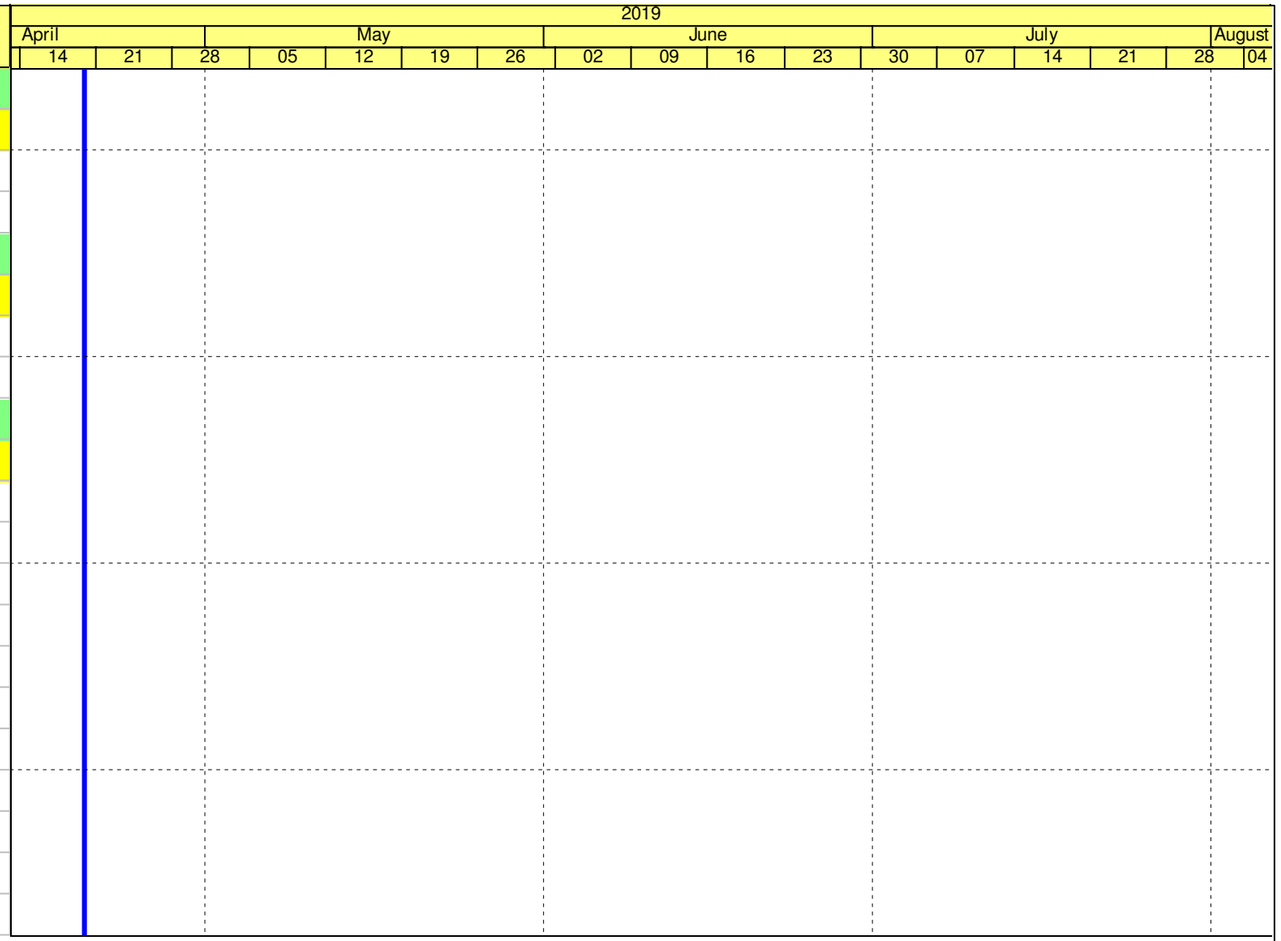
Activity ID	Activity Name	Rem Dur	Start	Finish
14 - SECTION 14 OF THE WORKS				
14.1 - Soft Landscape				
1410-1100	Transplant to Permanent Locations	84	16-Oct-19	23-Jan-20
1410-1200	Achieve KD19	0		23-Jan-20
15 - SECTION 13A OF THE WORKS				
15.1 - Soft Landscape				
1510-1000	Establishment Works at Portion XIII	365	25-Jan-20	23-Jan-21
1510-9000	Achieve KD17	0		23-Jan-21
16 - SECTION 13B OF THE WORKS				
16.1 - Soft Landscape				
1610-1000	Establishment Works at Portion IA	365	25-Jan-20	23-Jan-21
1610-1100	Establishment Works at Portion IIA	365	26-Sep-19	24-Sep-20
1610-1200	Establishment Works at Portion III	365	25-Jan-20	23-Jan-21
1610-1300	Establishment Works at Portion IVA	365	25-Jan-20	23-Jan-21
1610-1400	Establishment Works at Portion VA	365	25-Jan-20	23-Jan-21
1610-1500	Establishment Works at Portion VC	365	25-Jan-20	23-Jan-21
1610-1600	Establishment Works at Portion VI	365	25-Jan-20	23-Jan-21
1610-1700	Establishment Works at Portion VIIA	365	25-Jan-20	23-Jan-21
1610-1800	Establishment Works at Portion X	365	25-Jan-20	23-Jan-21
1610-1900	Establishment Works at Portion XIIA	365	25-Jan-20	23-Jan-21
1610-2000	Achieve KD18	0		23-Jan-21



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