

Ref.: AACWBIECEM00_0_6547L.15

23 April 2015

Lam Geotechnics Limited
11/F Centre Point
181-185 Gloucester Road
Wan Chai, Hong Kong

By Post and Fax (2882 3331)

Attention: Mr. Raymond DAI

Dear Sir,

**Re: Contract No. HK/2011/07
Wan Chai Development Phase II and Central-Wan Chai Bypass –
Sampling, Field Measurement and Testing Works (Stage 2)
Summary of major changes in Water Quality Monitoring Scheme under EP-356/2009
EM&A manual**

Reference is made to your submission of the captioned scheme received by e-mail on 23 April 2015 for our review and comment.

Please be informed that we have no adverse comment on the captioned submission.

Thank you for your kind attention.

Yours sincerely,



David Yeung
Independent Environmental Checker

c.c.	CEDD	Mr. Jason Cheung	by Fax: 2577 5040
	AECOM	Mr. Conrad Ng	by Fax: 2691 2649
	AECOM	Mr. Frankie Fan (PRE)	by Fax: 2587 1877

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Summary of major changes in Water Quality Monitoring Scheme under EP-356/2009 EM&A manual

1. Background

Under the Wan Chai Development Phase II (WDII) and Central Wan Chai Bypass Project (CWB) Project, the cooling water intakes located at Wan Chai area would be required to relocate to the re-provisioned pump stations to suit with the newly formed reclamation area. As such, it presents a need to relocate the water quality monitoring stations accordingly to effectively monitor any potential changes in water quality and potential impact to the relocated cooling water intakes during the construction phase.

In addition, with respect to the commencement of dredging works of different components under DP3 along Wan Chai and Causeway Bay Typhoon Shelter shoreline and the completion of works under DP5 and DP6, the division of monitoring stations under different Contracts shall be reviewed.

This article documents the major changes in the water quality monitoring scheme arrangement in relate to the EP-356/2009 EM&A manual (2010) with justification and relevant site information.

2. List of major changes

With consideration on the extend of changes to the previous water quality monitoring scheme outlined under EP-356/2009 EM&A manual (2010), the major changes in water quality monitoring were summarized as below,

- Relocation of water quality monitoring stations for relocated cooling water intakes in Wan Chai area
- New division of monitoring stations with respect to commencement of dredging works under Contract HK/2012/08 and Contract HY/2010/08

2.1 Relocation of water quality monitoring stations for relocated cooling water intakes in Wan Chai area

Due to the significant location difference, the previous water quality monitoring stations were considered to be invalid to represent the water quality at relocated cooling water intake. In addition, the site areas at the previous water quality monitoring stations were changed and affected by construction activities and no longer available for water quality monitoring. Under such circumstances, the water quality monitoring stations shall be relocated to the respective relocated intake locations. The location of the water quality monitoring stations before and after relocation are shown in **Appendix A** and the site conditions before and after relocation are illustrated in **Appendix B**. Such relocation of water quality monitoring stations is deemed necessary. The summary of relocation of water quality monitoring stations is presented in **Table 2.1**

Table 2.1 Summary of relocation of water quality monitoring stations

Previous Water Quality Monitoring stations	Respective relocated Water Quality Monitoring Stations	Remarks
WQM Station C2 (² Telecom House/ HKAcademy of Performing Arts/ Shui On Centre)	WQM Station P3 (HK Academy of Performing Arts) WQM Station P4 (Shui On Centre)	Re-provisioned cooling water intake pump stations at P1, P3, and P4 were fully commissioned and in-operation since April 2013 while pump station P5 was under full commission stage. After reviewing the cooling intake pump station status with WDII RSS and the IEC, the water quality monitoring at relocated water quality monitoring stations P1, P3, P4 and P5 was commenced since 24 April 2013.
WQM Station C3 (HKCEC Phase I)	WQM Station P1 (HKCEC Phase I)	
WQM Station C4w (Wan Chai Tower)	WQM Station P5 (Wan Chai Tower)	
WQM Station C4e (Great Eagle Centre)	WQM Station RW21-P789¹ (WSD Wan Chai Salt water Intake/ Sun Hung Kei Centre/ Great Eagle Centre)	With respect to the switching over of the cooling water intake to re-provisioned cooling water intake, the water quality monitoring at relocated water quality monitoring station RW21-P789 was commenced since 29 July 2013.
WQM Station C5e (Sun Hung Kei Centre)		
WQM Station C5w (Sun Hung Kei Centre)		
WQM Station WSD21 (WSD Wan Chai Salt Water Intake)		

Remarks¹: The relocated cooling water intakes and WSD saltwater intakes were installed with single curtain type silt screen and the water quality behind the silt screen is therefore represented by one monitoring station.

Remarks²: The pump house for Telecom House was terminated and subsequently demolished under contractor directly commissioned by Telecom House since 28 Jan 2013. Relevant records for the removal of pump station are documented under Lands Department.

2.2 New division of monitoring station with respect to commencement of dredging works under Contract HK/2012/08 and Contract HY/2010/08

With respect to the commencement of dredging works under Contract HY/2010/08 at TCBR3 work zone and Contract HK/2012/08 at HKCEC2 work zone and the current stages of dredging works scenario, the division of monitoring stations previously established ought to be reviewed.

Based on the extend of dredging works area under each Contract under the Projects, the new division of water quality monitoring stations to the Contractors under the WDII-CWB Projects was determined. The division of water quality monitoring stations before intakes relocation is shown in **Table 2.2** and after intakes relocation is shown in **Table 2.3**.

Table 2.2 Division of respective water quality monitoring stations for Contracts before cooling water relocation scheme

Contract No.	Associated DP(s) and work area(s) up to end 2012	Relevant Water Monitoring Stations
HK/2009/01	DP6, DP3 (HKCEC1, HKCEC3W, HKCEC3E, WCR3),	C1, C2, C3, C4e, C4w, WSD19
HK/2009/02	DP5, DP3 (WCR1, WCR2)	WSD21, C5e, C5w
HY/2009/15	DP3 (TCBR1E, TCBR1W, TPCWAE)	C6, C7, Ex-WPCWA SW, Ex-WPCWA SE (including enhanced DO monitoring described in 4.6.3)
HK/2010/06	DP3 (HKCEC2)	C2

Table 2.3 Division of respective water quality monitoring stations for Contracts after cooling water intake relocation scheme

Contract No.	Remaining DP3 and work area(s)	Relevant Water Monitoring Stations
HK/2009/01	DP3 (WCR3)	C1 ³
HK/2009/02	DP3 (WCR3, WCR4, TWCR4)	RW21-P789,C1 ³
HK/2012/08	DP3 (HKCEC2W, HKCEC2E)	P1, P3, P4, P5, WSD19 ¹
HY/2009/15	DP3 (TCBR2, TCBR3, TCBR1W, TPCWAE, TPCWAW)	C6 ² , C7 ² , Ex-WPCWA SW, Ex-WPCWA SE (including enhanced DO monitoring described in 4.6.3)
HY/2010/08	DP3 (TCBR3, TCBR4)	C6 ² , C7 ² (including enhanced DO monitoring described in 4.6.3)

Remarks1: The water monitoring quality station for WSD19 was reviewed and associated with Contract HK/2012/08 with respect to commencement of dredging works at HKCEC2 under HK/2012/08.

Remarks2: WQM station C6 and C7 shall be associated with both Contract HY/2009/15 and Contract HY/2010/08 upon commencement of marine works at CBTS under Contract HY/2010/08 and with Contract HY/2010/08 only upon completion of marine works at CBTS under Contract HY/2009/15.

Remarks3: WQM station C1 shall be associated with both Contract HK/2009/01 and Contract HK/2009/02 upon commencement of marine works at WCR3 under Contract HK/2009/02 and with Contract HK/2009/02 only upon completion of marine works at WCR3 under Contract HK/2009/01.

3. Conclusion

With respect to the relocation of cooling water intakes and WSD saltwater intake and the change in coastline configuration due to the permanent reclamation works in Wan Chai area (DP3), the associated water quality monitoring stations were relocated to effectively monitor any potential impacts arising during construction phase.

Subsequently, the association of water quality monitoring stations with Contracts were reviewed based on the commencement of corresponding DP works and the respective works area under individual Contract such that the implementation of the water quality monitoring as per the updated EM&A manual will not be affected.

-End-

Appendix A

*The location of the water quality monitoring stations
before and after relocation of pump stations for
cooling water intakes and WSD intake*

Legend

- ◆ Water Quality Monitoring Stations
- C1 Hong Kong Convention and Exhibition Centre Extension
- C2 Telecom House/ HK Academy For Performing Art/ Shui On Centre
- C3 Hong Kong Convention and Exhibition Centre Phase 1
- 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

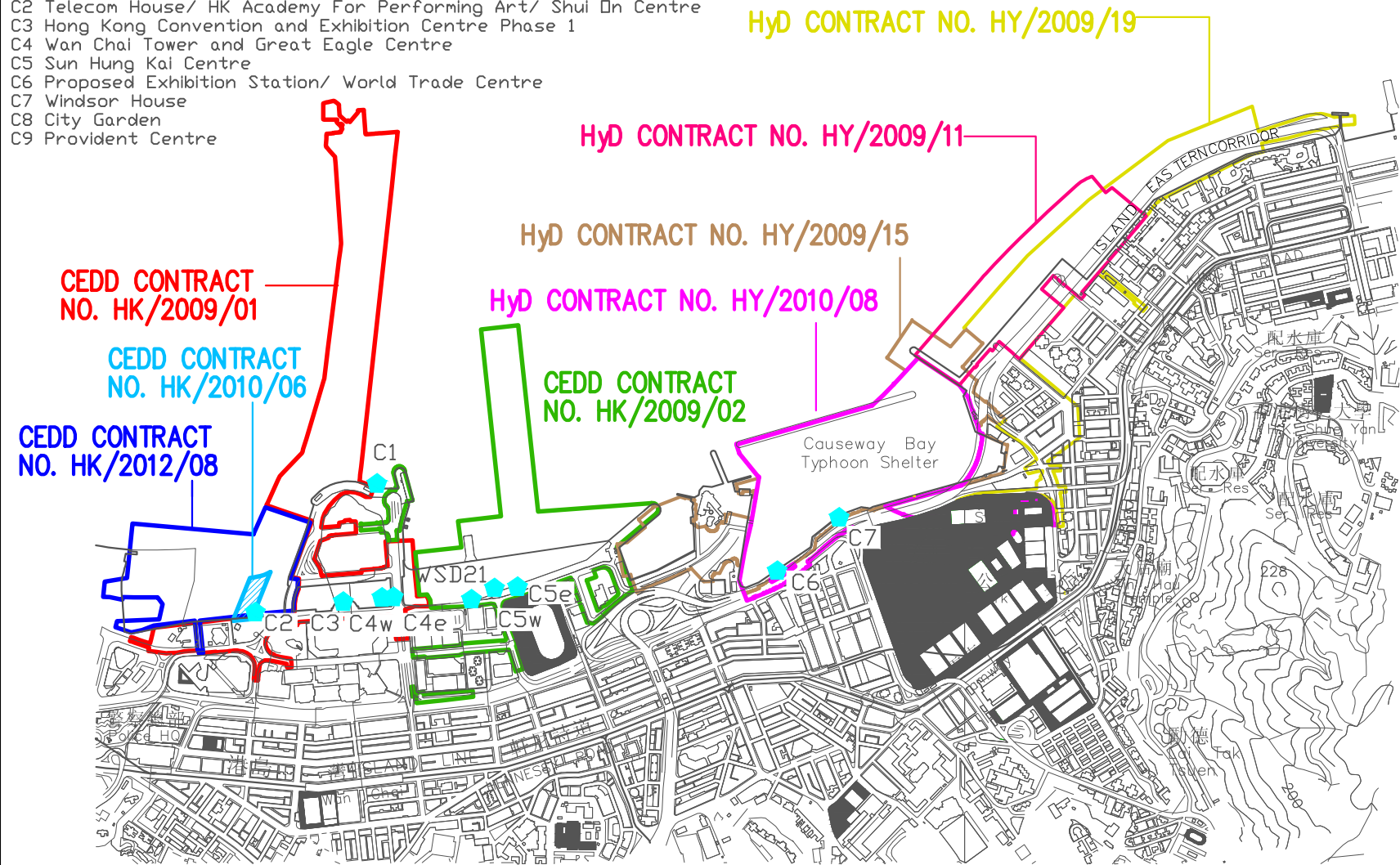


Figure 1

Locations of Water Quality Monitoring Stations before relocation of cooling water intakes and WSD saltwater intake

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

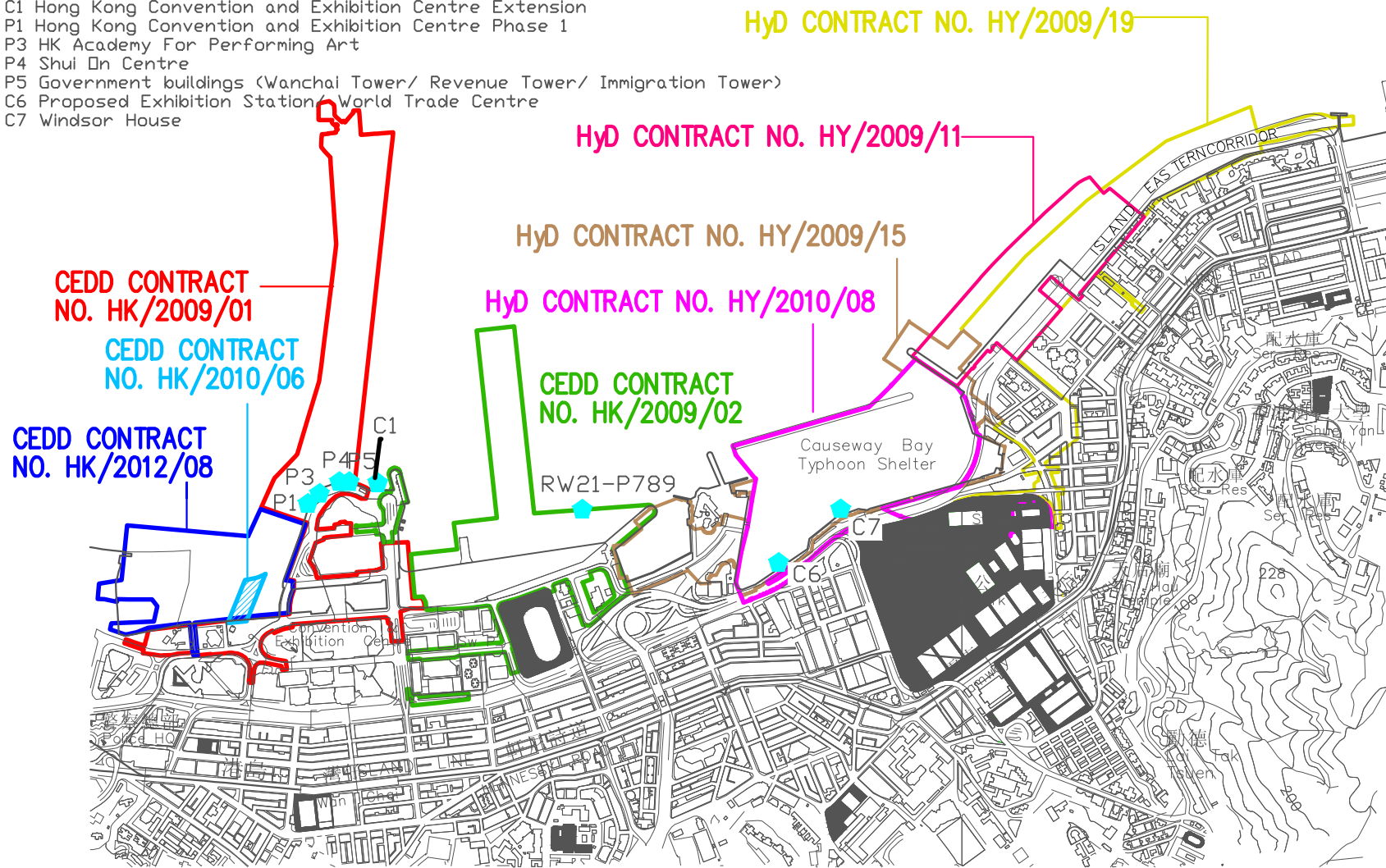


Figure 2

Locations of Water Quality Monitoring Stations after relocation of cooling water intakes and WSD saltwater intake

Appendix B

Site condition before and after relocation of pump stations for cooling water intakes and WSD intake

Site Condition of water quality monitoring stations ***Before*** pump stations relocation

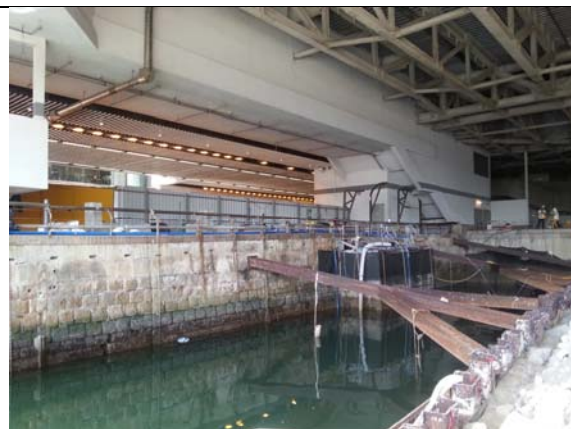


WQM Station C2

Site Condition of water quality monitoring stations ***After*** pump stations relocation










WQM Station C4e



WQM Stations C4w and C3



Site Condition of water quality monitoring stations <i>Before</i> pump stations relocation	Site Condition of water quality monitoring stations <i>After</i> pump stations relocation
 <p>WQM Stations WSD21, C5e, C5w</p>	
Not used	 <p>Relocated WQM Station RW21-P789</p>
Not used	 <p>Relocated WQM Station P5</p>

Site Condition of water quality monitoring stations <i>Before</i> pump stations relocation	Site Condition of water quality monitoring stations <i>After</i> pump stations relocation
Not used	 <p data-bbox="794 801 1401 875">Relocated WQM Station P4</p>
Not used	 <p data-bbox="794 1328 1401 1402">Relocated WQM Station P3</p>
Not used	 <p data-bbox="794 1854 1401 1928">Relocated WQM Station P1</p>