



CONTRACT NO: HK/2011/07

WANCHAI DEVELOPMENT PHASE II AND CENTRAL  
WANCHAI BYPASS  
SAMPLING, FIELD MEASUREMENT AND TESTING WORK  
(STAGE 2)

ENVIRONMENTAL PERMIT NO. EP-356/2009,  
FURTHER ENVIRONMENTAL PERMIT NOS. FEP-02/356/2009,  
FEP-03/356/2009, FEP-04/356/2009 AND FEP-05/356/2009

QUARTERLY ENVIRONMENTAL MONITORING  
AND AUDIT REPORT

- DECEMBER 2012 TO FEBRUARY 2013 -

CLIENTS:

Civil Engineering and Development  
Department

and

Highways Department

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CHECKED BY:

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Environmental Team Leader

DATE:

28 March 2013

Ref.: AACWBIECEM00\_0\_3758L.13

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 Sir,

**Re: Wan Chai Development Phase II and Central-Wan Chai Bypass  
Quarterly Environmental Monitoring and Audit Report (December 2012 to February 2013)  
for EP-356/2009, FEP-01/356/2009, FEP-02/356/2009, FEP-03/356/2009, FEP-04/356/2009  
and FEP-05/356/2009**

Reference is made to the Environmental Team's submission of the Quarterly Environmental Monitoring and Audit (EM&A) Report for December 2012 to February 2013 received by email on 28 March 2013.

Please be informed that we have no adverse comment on the captioned submission and thereby write to verify the captioned submission.

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

c.c.	HyD	Mr. Jones Lai	by fax: 2714 5289
	CEDD	Mr. Patrick Keung	by fax: 2577 5040
	AECOM	Mr. Julian Ling / Mr. Stephen Lai	by fax: 2691 2649
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**EXECUTIVE SUMMARY**

- i. This is the Quarterly Environmental Monitoring and Audit (EM&A) Report – December 2012 to February 2013 prepared 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 and FEP-05/356/2009. This report presents the environmental monitoring and audit findings and information during the period from December 2012 to February 2013. The cut-off date of reporting is at 27<sup>th</sup> of each reporting period.

Construction Activities for the Reported Period

- ii. During this reporting period, the principal work activities for Contract no. HK/2009/01 are summarized as below:

**Table I Principal Work Activities for Contract no. HK/2009/01**

December 2012	January 2013	February 2013
<p>Marine Works (at Wan Chai)</p> <ul style="list-style-type: none"> <li>• Rockfilling of HKCEC3E (East of HKCEC) between CH290 and CH385</li> <li>• Lateral supporting temporary pipe pile wall including grouting and tie back installation works</li> <li>• Removal of existing seawall and rock armour at Expo Drive East</li> <li>• Dredging works for Type 2 sediment beneath Expo Drive East Bridge</li> <li>• Installation of precast seawall blocks for caisson and box culvert (Bay 10) installation</li> <li>• Fabrication of 3 nos. precast concrete caisson seawall, 1 no. precast concrete box culvert (namely Bay10) and 2 nos. precast discharge outfall in precasting yard at Guangdong, China</li> </ul> <p>Cross-Harbour Watermains Installation (CHA &amp; CHB) and Marine Works (at TST)</p> <ul style="list-style-type: none"> <li>• Rockfilling and rock protection to cross-harbour watermains</li> <li>• Thrust block construction for A18B18</li> <li>• Reinstatement works for the TST landfall was temporary suspended and the site area was handed over to</li> </ul>	<p>Marine Works (at Wan Chai)</p> <ul style="list-style-type: none"> <li>• Rockfilling of HKCEC3E (East of HKCEC) between CH290 and CH385</li> <li>• Dredging works for Type 2 sediment near Wan Chai West Ferry Pier</li> <li>• Rockfilling at the southern part of HKCEC3E (East of HKCEC) between CH290 and CH385 for subsequent open channel construction</li> <li>• Installation of precast seawall blocks for caisson and box culvert (Bay 10) installation</li> <li>• Installation of precast units including caisson seawalls, box culvert (namely Bay10) and discharge outfall was commenced and substantially completed</li> </ul> <p>Cross-Harbour Watermains Installation (CHA &amp; CHB) and Marine Works (at TST)</p> <ul style="list-style-type: none"> <li>• Rockfilling and rock protection to cross-harbour watermains</li> <li>• Reinstatement works including seawall coping, gully, drawpit and tree transplantation for the TST landfall was resumed.</li> <li>• Construction of transformer rectifier at new reclaimed area was completed in reporting month and its cabling work</li> </ul> <p>Fresh Watermains, Cooling Watermains and Salt Watermains (On Land)</p>	<p>Marine Works (at Wan Chai)</p> <ul style="list-style-type: none"> <li>• Rockfilling at the northern part of HKCEC3E (East of HKCEC) between CH290 and CH385.</li> <li>• Rockfilling at the southern part of HKCEC3E (East of HKCEC) between CH290 and CH385 for subsequent open channel construction.</li> <li>• Installation of precast block seawall (Type 1, 2 &amp; 3).</li> <li>• Construction of mass concrete coping for new seawall.</li> </ul> <p>Cross-Harbour Watermains Installation (CHA &amp; CHB) and Marine Works (at TST)</p> <ul style="list-style-type: none"> <li>• Rockfilling and rock protection to cross-harbour watermains.</li> <li>• Reinstatement works including seawall coping, gully, drawpit and tree transplantation for the TST landfall.</li> <li>• Flushing to the cross-harbour water main (including CHA, CHB, CHE &amp; CHF).</li> <li>• CCTV inspection for cross-harbour water main (including CHA, CHB, CHE &amp; CHF).</li> </ul> <p>Fresh Watermains, Cooling Watermains and Salt Watermains (On Land)</p> <ul style="list-style-type: none"> <li>• Mainlaying works at Zone B6-1, B6-3, B6-5, A1-2A &amp; A1-3A, A3-3C and C1-2 .</li> </ul>

December 2012	January 2013	February 2013
<p>LCSD</p> <ul style="list-style-type: none"> <li>Construction of transformer rectifier at new reclaimed area</li> </ul> <p>Fresh Watermains, Cooling Watermains and Salt Watermains (On Land)</p> <ul style="list-style-type: none"> <li>Mainlaying works at Zone B6-1, B6-3, B6-5, B3-1, A1-1, A1-2, A1-4, A1-2A &amp; A1-3A, A2-3D, A3-2A, A3-4A, A3-5A, A3-3C, C1-6 and Run-out of Renaissance Hotel</li> <li>Mainlaying works and partially reinstatement in Zone A1-1 &amp; A1-2</li> <li>Mainlaying works and subsequent reinstatement in Zone A2-3D (Stage 1), A3-2A &amp; Heading No. 1 and A3-4B</li> <li>Mainlaying works at Zone A3-4A, A3-5A and A3-3C</li> <li>Mainlaying and chamber construction works at the traffic island near junction of Convention Avenue and Fenwick Pier Street</li> <li>Mainlaying works in Zone C1-6 of Expo Drive East and TTA Zone C1-4</li> <li>Mainlaying works for proposed sewerage system in Zone B6-1, B6-3 (previously named B1-5A) and B6-5 (previously named B2-1)</li> <li>Final cleaning, CCTV inspection and pressure test for the 9 nos. cooling watermains 23 out of 27 sections of cooling mains pipeline has been satisfied the pressure test.</li> </ul> <p>E&amp;M</p> <ul style="list-style-type: none"> <li>Full commissioning test for Cooling Water Pumping Station P1</li> <li>Site test for all E&amp;M equipment and facilities in Cooling Water Pumping Station P5</li> <li>Preparation works including testing and commissioning</li> </ul>	<ul style="list-style-type: none"> <li>Mainlaying works at Zone B6-1, B6-3, B6-5, A1-2A &amp; A1-3A, A2-3D (Stage 2), A3-3B, A3-4A, A3-5A, A3-3C and C1-4.</li> <li>Mainlaying works and substantially reinstatements in combined Zone A1-1 &amp; A1-2, Zone A1-4 and Run-out of Renaissance Hotel.</li> <li>Mainlaying works at Zone A1-3 (CHWM).</li> <li>Mainlaying works at Zone A1-2 (CHWM), Zone A2-3D (Stage 2) and A3-3B.</li> <li>Mainlaying works at Zone A3-4A and A3-5A.</li> <li>Mainlaying works at Zone A3-3C.</li> <li>Mainlaying and chamber construction works at the traffic island near junction of Convention Avenue and Fenwick Pier Street.</li> <li>The preparation works (including exposure of installed gate valve and repair of gate valve) at Convention Avenue for facilitating the changeover of cooling mains system of HKAPA.</li> <li>Mainlaying works at Zone C1-4.</li> <li>Mainlaying works for proposed sewerage system in Zone B6-1, B6-3 (previously named B1-5A) and B6-5 (previously named B2-1)</li> <li>Final cleaning, CCTV inspection and pressure test for the 9 nos. cooling watermains 25 out of 27 sections of cooling mains pipeline has been satisfied the pressure test.</li> </ul> <p>Tunnel Works</p> <ul style="list-style-type: none"> <li>Backfilling works on top of SCL protection works.</li> <li>Pre-bored H piling works for the proposed CWB and altogether 10 nos. and 9 nos. of pre-bored H piles.</li> <li>Pre-drilling works for CWB (Stage 2).</li> <li>Ground treatment works for proposed CWB diaphragm wall.</li> </ul>	<ul style="list-style-type: none"> <li>Mainlaying works and substantially reinstatements in Zone A1-2, A2-3D (Stage 2), C1-4 and A3-4A.</li> <li>Grouting, pipe connection and reinstatement works in combined Zone A1-2A &amp; A1-3A.</li> <li>Grouting, pipe connection and reinstatement works in Zone A1-3B.</li> <li>Mainlaying works and substantially reinstatements in Zone A3-5A, A3-3B and footpath of Fenwick Pier Street.</li> <li>Preparation works at Zone A3-3C for subsequent connection works.</li> <li>The preparation works (including exposure of installed gate valve and repair of butterfly valve) at Convention Avenue for facilitating the changeover of cooling mains system of HKAPA.</li> <li>The preparation works (including exposure of installed gate valve and repair of gate valve) at Convention Avenue for facilitating the changeover of cooling mains system of SOC.</li> <li>Mainlaying works at Zone C1-2.</li> <li>Mainlaying works and coring works at external wall of seawater pumping stations for proposed sewerage system in Zone B6-1.</li> <li>Mainlaying works and substantially reinstatements in Zone B6-3 (previously named B1-5A) and B6-5 (previously named B2-1).</li> <li>Final cleaning, CCTV inspection and pressure test for the 9 nos. cooling watermains.</li> <li>CCTV inspection for cross-harbour watermains (land pipe at Wan Chai).</li> <li>Pressure test for cross harbour watermains (whole length of land pipes in Wan Chai).</li> </ul>

December 2012	January 2013	February 2013
of all E&M equipment, BMS system and facilities in Cooling Water Pumping Station P3 and P4	<ul style="list-style-type: none"> <li>Plant Mobilization for diaphragm wall construction works at Stage 2.</li> </ul> <p>E&amp;M</p> <ul style="list-style-type: none"> <li>Full commissioning test for Cooling Water Pumping Station P1</li> <li>Site test for all E&amp;M equipment and facilities in Cooling Water Pumping Station P5</li> </ul>	<ul style="list-style-type: none"> <li>Trench excavation for HEC and PCCW cabling works connected to the proposed transformer rectifier at new reclaimed area.</li> </ul> <p>Tunnel Works</p> <ul style="list-style-type: none"> <li>Backfilling works on top of SCL protection works.</li> <li>Pre-bored H piling works for the proposed CWB stage 1b</li> <li>Pre-drilling works for CWB (Stage 2).</li> <li>Diaphragm wall construction works at Stage 2.</li> <li>Removal of remaining guide wall along Convention Avenue.</li> </ul> <p>E &amp; M</p> <ul style="list-style-type: none"> <li>Full commissioning test for Cooling Water Pumping Station P1.</li> <li>Site test for all E&amp;M equipment and facilities in Cooling Water Pumping Station P5.</li> <li>Initial commissioning test for Cooling Water Pumping Station P5.</li> </ul>

- iii. During this reporting period, the principal work activities for Contract no. HK/2009/02 are summarized as below:

**Table II Principal Work Activities for Contract no. HK/2009/02**

December 2012	January 2013	February 2013
<ul style="list-style-type: none"> <li>Concreting the slab with hanger wall for planting area (+13.55mPD) between G.L.3-6/B-C &amp; E-F on Observation Deck Level (+14.65mPD)</li> <li>Concreting the base slab and wall of sprinkler water tank machine room and the slab of Machine Room</li> <li>Installation of concrete block wall for store room 1 and room 2 on Level 1</li> <li>Erecting the wall stem formwork for caisson seawall precast unit 2X on flat-top barge</li> <li>Modification work of PTI at Expo Drive East</li> <li>Modification work of bus</li> </ul>	<ul style="list-style-type: none"> <li>Modification work of PTI at Expo Drive East.</li> <li>Modification work of bus station at Expo Drive East near EVA.</li> <li>Breaking up the existing covered walkway footing at Expo Drive East.</li> <li>Concreting the retaining wall base slab of Bay1, Bay 2 and Bay 5 at Expo Drive East.</li> <li>Rectification works at bending block of cooling mains.</li> <li>Backfilling at the conjunction between Tonnochy road and Harbour Road was commenced after replacement of cable joint.</li> </ul>	<ul style="list-style-type: none"> <li>Modification work of PTI at Expo Drive East.</li> <li>Modification of existing covered walkway along Expo Drive East.</li> <li>Pressure tests and the necessary rectification works for the installed cooling water mains.</li> <li>Backfilling for trench at the junction between Tonnochy Road and Harbour Road.</li> <li>E&amp;M works and their T&amp;C in Cooling Water Pumping Stations P7, P8 and P9.</li> <li>Wet Tests at WSD Salt Water Pumping Station.</li> <li>Backfilling grade 200 mm rock materials from Bay 6 to</li> </ul>



December 2012	January 2013	February 2013
<p>station at Expo Drive East near EVA</p> <ul style="list-style-type: none"> <li>• Breaking up the existing covered walkway footing at Expo Drive East</li> <li>• Rectification works at bending block of cooling mains</li> <li>• E&amp;M works and ABWFs installation at WSD Salt Water Pumping Station</li> <li>• Drilling hole and installation of pipe bracket for aeration and chlorination pipe inside salt water intake culvert Bay 3 to Bay 5</li> <li>• Concreting of the structure at salt water intake culvert Bay 10 and Bay 11 at WCR1</li> <li>• Steel fixing of the shaft of Bay 2a in salt water intake seaside cofferdam</li> <li>• Breaking the existing concrete road slab for DN800 salt water mains at Ex-pet garden near gate 1</li> <li>• Installation the shoring to trial pit of the permanent connection point to existing DN 600 water main at Hung Hing Road was commenced</li> <li>• Installation of precast concrete short pipe extended from the existing 1800 drainage at Box Culvert N landside</li> </ul>	<ul style="list-style-type: none"> <li>• E&amp;M works and ABWFs installation at WSD Salt Water Pumping Station.</li> <li>• Concreting infill mass concrete at both sides and concreting 1m width x 300mm high mass for cover M.J. at Bay 9 to Bay 11 in salt water intake landside cofferdam.</li> <li>• Backfilling grade 200mm rock material in the trench at Bay 6 to Bay 8 in salt water intake landside cofferdam.</li> <li>• Drilling hole and installation of pipe bracket for aeration and chlorination pipe inside salt water intake culvert Bay 3 to Bay 5.</li> <li>• The shafts of Intake chamber No.1 and No.2 for Bay 2A in salt water intake seaside cofferdam were casted the 2nd layer of the horizontal struts.</li> <li>• Placing concrete for bend blocks btw CHS8A 150-165 at Ex-pet garden near new Gate No.2.</li> <li>• Installation the shoring to trial pit of the permanent connection point to existing DN 600 water main at Hung Hing Road.</li> <li>• Saw cutting of southern diaphragm wall for the connection between existing drainage and Bay 1 of box culvert N1.</li> <li>• Laying 1800mm dia. concrete pipe for the connection between existing drainage and Bay 1 of box culvert N1.</li> <li>• Erecting formwork for concrete surround for concrete pipe.</li> <li>• Concreting of columns (total 6nos.) from M/F (+11.15mPD) to Observation Deck Level (+14.65mPD) and Slab with beam between G.L.1-3/B-F on Level 2 (+7.65mPD).</li> <li>• Concreting of columns (total 9nos.) from Level 2 (+7.65mPD) to Observation Deck Level (+14.65mPD).</li> </ul>	<p>Bay 11 in salt water intake landside cofferdam.</p> <ul style="list-style-type: none"> <li>• Drilling hole and installation of pipe bracket for aeration and chlorination pipe inside salt water intake culvert Bay 19B to Bay 24.</li> <li>• Diver work for excavation down to formation level at Bay 1B in salt water intake seaside cofferdam.</li> <li>• Mainlaying works for DN800 salt water mains (CHS8A) at Ex-Pet Garden.</li> <li>• Works for the Outfall B had been and the dye test.</li> <li>• Switching over works for sewage to WCE PTW.</li> <li>• RC structures for the proposed Ferry Pier.</li> <li>• Construction of eastern concrete staircase to Observation Deck Level.</li> <li>• Concreting of base slab with stem wall for PT2 &amp; PT3 at Level 1 (under +4.15mPD).</li> <li>• Installation of concrete block wall for store room 1 and store room 2 on Level 1.</li> <li>• Application of protective coating to proposed precast caisson seawall 2X</li> <li>• Eastern Bulkhead Wall, Panel BHP3, BHP7 and BHP9 were cast (3 out of 13 panels) and excavation for Panel BHP5.</li> </ul>

December 2012	January 2013	February 2013
	<ul style="list-style-type: none"> <li>• Concreting of portion 2 for column C2C from +11.65mPD to +13.90mPD up to Observation Deck Level (+14.65mPD).</li> <li>• Concreting of portion 1 for column C2E from +7.65mPD to +11.65mPD up to Observation Deck Level (+14.65mPD).</li> <li>• Steel fixing and Formwork erection to Observation Deck Level at from GL 3-8 &amp; 9-15.</li> <li>• Installation of concrete block wall for store room 1 and room 2 on Level 1.</li> <li>• Placing concrete of the final portion for precast scission seawall 2X.</li> </ul>	

- iv. Contract no. HY/2009/15 was commenced on 10 November 2010. During this reporting period, the principal work activities for Contract no. HY/2009/15 are summarized as below:

**Table III Principal Work Activities for Contract no. HY/2009/15**

December 2012	January 2013	February 2013
<ul style="list-style-type: none"> <li>• TZ1 and TS2 reclamation works</li> <li>• Formation of temporary seawall at TS2</li> </ul>	<ul style="list-style-type: none"> <li>• TZ1 and TS2 reclamation works</li> <li>• Formation of temporary seawall at TS2</li> </ul>	<ul style="list-style-type: none"> <li>• Removal of eastern breakwater of CBTS</li> </ul>

- v. Contract no. HK/2010/06 was commenced on 22 March 2011. During this reporting period, the principal work activities for Contract no. HK/2010/06 are summarized as below:

**Table IV Principal Work Activities for Contract no. HK/2010/06**

December 2012	January 2013	February 2013
<ul style="list-style-type: none"> <li>• Sheet piling</li> <li>• Platform Disassembly</li> <li>• Bored pile casing cutting</li> <li>• Grouting</li> </ul>	<ul style="list-style-type: none"> <li>• Disassembly of staging platform</li> <li>• Pile case cutting</li> <li>• Sheet pile installation</li> <li>• Dredging</li> <li>• Construction of pre-cast unit in mainland China</li> </ul>	<ul style="list-style-type: none"> <li>• Pile Head Breaking</li> <li>• Pile Casing Cutting</li> <li>• Sheet Piling Works</li> <li>• Dredging</li> <li>• Utility Diversion Works</li> <li>• Precast Unit Box Construction (mainland China)</li> </ul>

- vi. Contract no. HY/2009/19 was commenced on 24 March 2011. During this reporting period, the principal work activities for Contract no. HY/2009/19 are summarized as below:

**Table V Principal Work Activities for Contract no. HY/2009/19**

December 2012	January 2013	February 2013
<ul style="list-style-type: none"> <li>• Marine bored piling</li> <li>• Construction works for Box Culvert T</li> </ul>	<ul style="list-style-type: none"> <li>• Road works at Watson Road</li> <li>• Bored piling (Land)</li> <li>• Pre-drilling works for bored</li> </ul>	<ul style="list-style-type: none"> <li>• Road works at Watson Road</li> <li>• Bored piling (Land)</li> <li>• Pre-drilling works for bored</li> </ul>

December 2012	January 2013	February 2013
<ul style="list-style-type: none"> <li>Construction of 1500φ drainage pipe</li> </ul>	<ul style="list-style-type: none"> <li>pile and Diaphragm wall</li> <li>D-wall Construction (North &amp; South Section)</li> <li>Guide wall construction for D-wall / Barrette at North side</li> <li>Construction works for Box Culvert T1</li> <li>Marine Piling</li> <li>Construction of socket-H pile</li> <li>Construction works for Culvert U1</li> <li>Construction of Pile cap &amp; column (Land)</li> <li>Dismantling of marine platform</li> <li>Demolition of parapet at IEC Link</li> <li>Construction of Pile caps &amp; columns (Marine)</li> <li>Cut &amp; Cover Tunnel sheet piling works and installation of King Post</li> <li>Construction of dewatering well for Cut &amp; Cover Tunnel</li> </ul>	<ul style="list-style-type: none"> <li>pile and Diaphragm wall</li> <li>D-wall Construction (North &amp; South Section)</li> <li>Guide wall construction for D-wall / Barrette at North side</li> <li>Construction works for Box Culvert T1</li> <li>Marine Piling</li> <li>Construction of socket-H pile</li> <li>Construction works for Culvert U1</li> <li>Construction of Pile cap &amp; column (Land)</li> <li>Dismantling of marine platform</li> <li>Demolition of parapet at IEC Link</li> <li>Construction of Pile caps &amp; columns (Marine)</li> <li>Cut &amp; Cover Tunnel sheet piling works and installation of King Post</li> <li>D8-D9 Gantry Fabrication for precast segment will continue</li> <li>Construction of dewatering well for Cut &amp; Cover Tunnel</li> <li>ELS for Cut &amp; Cover Tunnel</li> </ul>

Noise Monitoring

- vii. Noise monitoring during day time and evening time were conducted at the M1a, M2b, M3a, M4b, M5b and M6 on a weekly basis in the reporting period. The Action and Limit level exceedances recorded in the reporting period are listed below. Investigation found that exceedances were not related to the Project. Investigation found that exceedances were not related to the Project.
- viii. Thirteen limit level exceedance was recorded at M6 on 29 November 2012, 11, 17 and 27 December 2012, 3, 8, 15, 24 and 29 January 2013, 7, 15, 19 and 26 February 2013. The limit level exceedances were considered as non-project related.
- ix. Two limit level exceedances were recorded at M1a on 24 and 29 January 2013. The limit level exceedances were considered as non-project related.

Real-time Noise Monitoring

- x. As the land-based piling and filling works- DP3 at Tin Hau had been completed on 3 September 2012 and confirmed by RSS, the real-time noise monitoring results at FEHD Hong Kong Transport Section Whitfield Depot was excluded under EP-356/2009 since 28 November 2012.
- xi. Real-time noise monitoring at FEHD Hong Kong Transport Section Whitefield Depot and Oil Street Community Centre have been commenced on 5 October 2010 for the filling works of Contract no. HY/2009/11.

- xii. Real-time noise monitoring at FEHD Hong Kong Transport Section Whitefield Depot commenced external wall renovation since 1 June 2012
- xiii. Oil Street Community Liaison Centre was confirmed to be demolished in mid-October by CWB RSS. This presented a need for relocation of RTN2 – Oil Street Community Liaison Centre. After liaison with Hong Kong Electric, permission was granted on 21 Sep 2012 for real time noise monitoring set up at City Garden Electric Centre (RTN2a – Electric Centre), which is a representative of the noise sensitive receiver City Garden. The real-time noise monitoring at RTN2-Oil Street Community Liaison Centre has been relocated to City Garden Electric Centre (RTN2a- Electric Centre) on 5 Oct 2012. The baseline noise level of RTN2a will adopt the results derived from the baseline noise monitoring conducted in Electric Centre from 4 December 2009 to 17 December 2009.
- xiv. Limit level exceedance was recorded at RTN2a-Electric Centre on 7 Dec 2012 in the reporting quarter. After checking with contractor, no major noisy construction works were conducted during the time period and the non CWB project construction activities near Electric Centre was considered to be the major source of noise impact. As such, the exceedance was concluded as non-project related.
- xv. Limit level exceedances were recorded at RTN2a-Electric Centre during daytime on 31 Jan 2013 and during restricted hours on 5, 11 and 12 Feb 2013. After checking with contractor, on 31 Jan 2013, no noisy construction activities were undertaken during the recorded period. The exceedance was non-continuous and considered to be contributed by the IEC traffic. On 11 and 12 Feb 2013, no construction activities were conducted and the exceedances were considered to be contributed by the Chinese New Year pyrotechnic display and IEC traffic respectively. As such, the exceedances were concluded as non-project related..

#### Air Quality Monitoring

- xvi. Due to extension of site boundary by contractor of HY/2009/19, location of air monitoring station CMA1b – Oil Street Community Liaison Centre has been finely adjusted on 21 April 2012.
- xvii. Due to lack of electric supply, the 24-hr TSP monitoring at the following stations were rescheduled as below:
  - CMA2a: from 13 December 2012 to 14 December 2012
  - CMA3a: from 22 December 2012 to 24 December 2012  
from 26 Jan 2013 to 28 Jan 2013
  - CMA6a: from 1 December 2012 to 3 December 2012
  - CMA5a: from 26 Feb 2013 to 27 Feb 2013
- xviii. 1hr and 24hr TSP monitoring were conducted at CMA1b, CMA2a, CMA3a, CMA4a, CMA5a and CMA6a in the reporting period. No exceedance was recorded during the reporting period.

#### Water Quality Monitoring

- xix. Water quality monitoring was conducted at 14 monitoring stations namely WSD7, WSD19, WSD20, WSD 21, C1, C2, C3, C4e, C4w, C5e, C5w, C7, C8 and C9 during the reporting period.
- xx. Due to the blockage of road access to C1 on 15 Dec 2012 during mid-flood, the water quality monitoring was cancelled at C1 on 15 December 2012 during mid-flood.

- xxi. As confirmed by HY/2009/19 contractor, there was no marine work to be conducted on 26 December 2012, water quality monitoring at C8 and C9 were temporary suspended on 26 December 2012 during mid-ebb and mid-flood.
- xxii. Due to the blockage of road access to C2 on 7 Jan 2013 during mid-flood, the water quality monitoring at C2 was cancelled on 7 Jan 2013 during mid-flood.
- xxiii. Due to the blockage of road access to C5e and C5w on 7 Jan 2013 during mid-ebb tide and 9, 11, 14 Jan the sample was taken under contingency C5 on 7 Jan 2013 during mid-ebb and 9, 11, 14 Jan during mid-flood and mid-ebb.
- xxiv. Water quality monitoring was cancelled on 12 February 2013 due to closing of construction site within the Chinese New year Holiday
- xxv. Due to the lack of lighting on the road access to C5e and C5w on 4 Feb 2013 during mid-ebb tide Jan the sample was taken under contingency C5 on 4 Feb 2013 during mid-ebb.
- xxvi. Total 5 DO exceedances, 16 turbidity exceedances and 11 SS exceedances were recorded during mid-flood while 1 DO exceedance, 10 turbidity exceedances and 5 SS exceedances were recorded during mid-ebb in the reporting period. Investigations were found that all were not project-related. The details of the recorded exceedances can be referred to the Section 5.4.
- xxvii. Enhanced DO monitoring at 4 monitoring stations in Causeway Bay Typhoon Shelter and Ex-Public Cargo Works Area was conducted three days per week during the reporting period. There were 22 DO exceedance during mid-flood and 8 DO exceedances during mid-ebb recorded in this reporting period. Investigation found that all exceedances were not project-related.
- xxviii. 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.
- xxix. Based on the joint inspection on 4 Jan 2012 for the NPR area, the 4-week water quality monitoring at WSD9, WSD10, WSD15, WSD17, C8, C9 to confirm no water deterioration with respect to NPR was commenced since 7 Jan 2012 and was completed on 6 Feb 2012 water quality monitoring.
- xxx. Water quality monitoring at WSD10 and WSD15 will be temporary suspended while water quality monitoring at WSD9 and WSD17 was implemented with respect to HK/2009/02 from 8 Feb 12 onwards;
- xxxi. Water quality monitoring at C8 and C9 have been implemented with respect to HY/2009/19 since the marine bore piling work started on 28 Jan 12.
- xxxii. Based on the safety concern when external façade refurbishment was conducted by contractor employed by Provident Centre (C9) between 9 January 2012 to 30 July 2012 which caused to the inaccessibility of sampling either land and marine since 3 Feb 2012, there is a fine adjustment of the sampling location of water quality monitoring at C9 since 10 March 2012 to the closest accessible point prior to the completion of the external façade refurbishment work.

- xxxiii. With respect to the trial dredging at WCR2 was scheduled on 20, 22, 24, 25 March and 1, 3, 11, 13, 15, 17, 19, 20 Apr and 3 May 2012, on-going water quality monitoring results at WSD21 during this period was checked and indicated that there was no contribution due to the trial dredging operation. Enhanced review of water quality around WCR2 was also implemented and no deterioration in the water quality was observed.
- xxxiv. Due to the access of water monitoring station at WSD19 was blocked by LCSD construction works from 3 April 2012 to 2 May 2012 and lead to the inaccessibility of sampling either land and marine, there is a fine adjustment of the sampling point of WSD 19 since 5 April 2012 to the closest accessible point prior to the completion of the construction activities.
- xxxv. Due to the dredging works for Cross Harbour Water Mains from Wan Chai to Tsim Sha Tsui-DP6 was completed on 26 March 2012, the temporary suspension of impact water quality monitoring at WSD7 and WSD20 after 27 April 2012 for the water quality monitoring at WSD7 and WSD20 have been monitored for 4-week period after the completion of DP6 to confirm no water deterioration.

Complaints, Notifications of Summons and Successful Prosecutions

- xxxvi. There was no environmental complaint recorded in the reporting period.

## 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-01/356/2009, FEP-02/356/2009, FEP-03/356/2009, FEP-04/356/2009 and FEP-05/356/2009 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-014/2001).
- 1.1.2. This report presents the environmental monitoring and auditing work carried out in accordance to the Section 10.4 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 during the period from December 2012 to February 2013

### 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**      ***Monitoring Requirements*** – summarizes all monitoring parameters, monitoring locations, monitoring frequency, duration and action plan.
- Section 4**      ***Monitoring Results*** – summarizes the monitoring results obtained in the reporting period.
- Section 5**      ***Compliance Audit*** – summarizes the auditing of monitoring results, all exceedances environmental parameters.
- Section 6**      ***Complaints, Notification of summons and Prosecution*** – summarizes the cumulative statistics on complaints, notification of summons and prosecution
- 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**      ***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
  - Re-provisioning / protection of the existing facilities and structures affected by the land formation works mentioned above



- Extension, modification, re-provisioning 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
		DP1, DP2	25 August 2011
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 (Under application of surrender)
HY/2009/15	Central-Wanchai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section)	DP3	10 November 2010
		DP1	13 July 2011
HK/2010/06	Wan Chai Development Phase II-Central-Wan Chai Bypass over MTR Tsuen Wan Line	DP3	22 March 2011
04/HY/2006	Reconstruction of Bus Terminus near Man Yiu Street and Man Kwong Street	DP1	September 2010
HY/2009/17	Central - Wan Chai Bypass (CWB) at FEHD Whitfield Depot - Advanced piling works.	DP1	5 October 2010
HY/2009/18	Central - Wan Chai Bypass (CWB) – Central Interchange	DP1	21 April 2011
HY/2009/19	Central - Wanchai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link	DP1	24 March 2011

## 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	Principal Resident Engineer	Mr. Frankie Fan	2587 1778	2587 1877
	Engineer's Representative for CWB	Principal Resident Engineer	Mr. Peter Poon	3916 1818	3529 2829

Party	Role	Post	Name	Contact No.	Contact Fax
Chun Wo – Leader Joint Venture	Contractor under Contract no. HK/2009/01	Joint Venture Board Representative	Mr. PL Yue	2162 9909	2587 1878
		Site Agent	Mr. Paul Yu	9456 9819	
		Deputy Site Agent	Mr Andy Yu	9648 4896	
		Sub-Agent	Mr Terry Wong	9757 9846	
		Construction Manager	Mr. Wyman Wong	9627 2467	
		Construction Manager	Mr. Jack Chu	9775 3008	
		Environmental Officer (Compliance Manager)	Mr. Andy Mak	9103 2370	
		Environmental Supervisor	Kwong Weng Kit	6253 3356	
Chun Wo – CRGL Joint Venture	Contractor under Contract no. HK/2009/02	Deputy Project Manager	Mr. Chan Sing Cho	3658 3002	2827 9996
		Quality & Environmental Manager (Environmental Officer)	Mr. C.P. Ho	3658 3000	
China State Construction Engineering (HK) Ltd.	Contractor under Contract no. HY/2009/15	Project Director	Chan Wai Hung	2823 7813	2865 5229
		Site Manager	P J Fan	3557 6368	2566 2192
		Contractor's Representative	Mr. David Lau	3557 6368	2566 2192
		Head of Construction Manager	Roger Cheung	3557 6371	2566 2192
		Senior Construction Manager	Gene Cheung	3557 6395	2566 2192
		Environmental Officer	Mr. Daniel Sin	3557 6215	
Gammon -Leader JV	Contractor under Contract no. HK/2010/06	Project Manager	Mr. Paul Lui	9095 7922	2529 2880
		Site Agent	Mr. Keith Tse	2529 2068	
		Environmental Officer	Mr. Lee Wai Man	9481 6024	
		Environmental Supervisor	Clement Pang	9735 9200	
Chun Wo - CRGL -	Contractor under Contract no.	Project Manager	Mr. Rayland Lee	3758 8879	2570 8013

Party	Role	Post	Name	Contact No.	Contact Fax
MBEC Joint Venture	HY/2009/19	Site Agent	Mr. Cheung Kit Cheung	6909 1555	
		Environmental Engineer	Mr. Calvin Leung	9286 9208	
		Environmental Manager / Environmental Officer	Mr. M.H. Isa	9884 0810	
		Construction Manager (Marine)	William Luk	9610 1101	
		Construction Manager (Land)	Patrick Cheung	9643 3012	
		Construction Manager (Land)	Eric Fong	6191 9337	
		Operation Manager (Land)	Yung Kwok Wah	9834 1010	
ENVIRON Hong Kong Limited	Independent Environmental Checker (IEC)	Independent Environmental Checker (IEC)	Mr. David Yeung	34652888	34652899
Lam Geotechnics Limited	Environmental Team (ET)	Environmental Team Leader (ETL)	Mr. Raymond Dai	2882 3939	2882 3331

## 2.5 Principal Work and Activities

2.5.1. During this reporting period, the principal work activities for Contract no. HK/2009/01 are summarized in **Table 2.4**.

**Table 2.4 Principal Work Activities for Contract no. HK/2009/01**

December 2012	January 2013	February 2013
Marine Works (at Wan Chai) <ul style="list-style-type: none"> <li>• Rockfilling of HKCEC3E (East of HKCEC) between CH290 and CH385</li> <li>• Lateral supporting temporary pipe pile wall including grouting and tie back installation works</li> <li>• Removal of existing seawall and rock armour at Expo Drive East</li> <li>• Dredging works for Type 2 sediment beneath Expo Drive East Bridge</li> <li>• Installation of precast seawall blocks for caisson and box culvert (Bay 10) installation</li> </ul>	Marine Works (at Wan Chai) <ul style="list-style-type: none"> <li>• Rockfilling of HKCEC3E (East of HKCEC) between CH290 and CH385</li> <li>• Dredging works for Type 2 sediment near Wan Chai West Ferry Pier</li> <li>• Rockfilling at the southern part of HKCEC3E (East of HKCEC) between CH290 and CH385 for subsequent open channel construction</li> <li>• Installation of precast seawall blocks for caisson and box culvert (Bay 10) installation</li> <li>• Installation of precast units including caisson seawalls, box culvert (namely Bay10)</li> </ul>	Marine Works (at Wan Chai) <ul style="list-style-type: none"> <li>• Rockfilling at the northern part of HKCEC3E (East of HKCEC) between CH290 and CH385.</li> <li>• Rockfilling at the southern part of HKCEC3E (East of HKCEC) between CH290 and CH385 for subsequent open channel construction.</li> <li>• Installation of precast block seawall (Type 1, 2 &amp; 3).</li> <li>• Construction of mass concrete coping for new seawall.</li> </ul> Cross-Harbour Watermains Installation (CHA & CHB) and

December 2012	January 2013	February 2013
<ul style="list-style-type: none"> <li>• Fabrication of 3 nos. precast concrete caisson seawall, 1 no. precast concrete box culvert (namely Bay10) and 2 nos. precast discharge outfall in precasting yard at Guangdong, China</li> </ul> <p>Cross-Harbour Watermains Installation (CHA &amp; CHB) and Marine Works (at TST)</p> <ul style="list-style-type: none"> <li>• Rockfilling and rock protection to cross-harbour watermains</li> <li>• Thrust block construction for A18B18</li> <li>• Reinstatement works for the TST landfall was temporary suspended and the site area was handed over to LCSD</li> <li>• Construction of transformer rectifier at new reclaimed area</li> </ul> <p>Fresh Watermains, Cooling Watermains and Salt Watermains (On Land)</p> <ul style="list-style-type: none"> <li>• Mainlaying works at Zone B6-1, B6-3, B6-5, B3-1, A1-1, A1-2, A1-4, A1-2A &amp; A1-3A, A2-3D, A3-2A, A3-4A, A3-5A, A3-3C, C1-6 and Run-out of Renaissance Hotel</li> <li>• Mainlaying works and partially reinstatement in Zone A1-1 &amp; A1-2</li> <li>• Mainlaying works and subsequent reinstatement in Zone A2-3D (Stage 1), A3-2A &amp; Heading No. 1 and A3-4B</li> <li>• Mainlaying works at Zone A3-4A, A3-5A and A3-3C</li> <li>• Mainlaying and chamber construction works at the traffic island near junction of Convention Avenue and Fenwick Pier Street</li> <li>• Mainlaying works in Zone C1-6 of Expo Drive East and TTA Zone C1-4</li> <li>• Mainlaying works for proposed sewerage system in Zone B6-1, B6-3</li> </ul>	<p>and discharge outfall was commenced and substantially completed</p> <p>Cross-Harbour Watermains Installation (CHA &amp; CHB) and Marine Works (at TST)</p> <ul style="list-style-type: none"> <li>• Rockfilling and rock protection to cross-harbour watermains</li> <li>• Reinstatement works including seawall coping, gully, drawpit and tree transplantation for the TST landfall was resumed.</li> <li>• Construction of transformer rectifier at new reclaimed area was completed in reporting month and its cabling work</li> </ul> <p>Fresh Watermains, Cooling Watermains and Salt Watermains (On Land)</p> <ul style="list-style-type: none"> <li>• Mainlaying works at Zone B6-1, B6-3, B6-5, A1-2A &amp; A1-3A, A2-3D (Stage 2), A3-3B, A3-4A, A3-5A, A3-3C and C1-4.</li> <li>• Mainlaying works and substantially reinstatements in combined Zone A1-1 &amp; A1-2, Zone A1-4 and Run-out of Renaissance Hotel.</li> <li>• Mainlaying works at Zone A1-3 (CHWM).</li> <li>• Mainlaying works at Zone A1-2 (CHWM), Zone A2-3D (Stage 2) and A3-3B.</li> <li>• Mainlaying works at Zone A3-4A and A3-5A.</li> <li>• Mainlaying works at Zone A3-3C.</li> <li>• Mainlaying and chamber construction works at the traffic island near junction of Convention Avenue and Fenwick Pier Street.</li> <li>• The preparation works (including exposure of installed gate valve and repair of gate valve) at Convention Avenue for facilitating the changeover of cooling mains system of HKAPA.</li> <li>• Mainlaying works at Zone C1-4.</li> <li>• Mainlaying works for proposed sewerage system in Zone B6-1, B6-3 (previously named B1-5A) and B6-5 (previously</li> </ul>	<p>Marine Works (at TST)</p> <ul style="list-style-type: none"> <li>• Rockfilling and rock protection to cross-harbour watermains.</li> <li>• Reinstatement works including seawall coping, gully, drawpit and tree transplantation for the TST landfall.</li> <li>• Flushing to the cross-harbour water main (including CHA, CHB, CHE &amp; CHF).</li> <li>• CCTV inspection for cross-harbour water main (including CHA, CHB, CHE &amp; CHF).</li> </ul> <p>Fresh Watermains, Cooling Watermains and Salt Watermains (On Land)</p> <ul style="list-style-type: none"> <li>• Mainlaying works at Zone B6-1, B6-3, B6-5, A1-2A &amp; A1-3A, A3-3C and C1-2 .</li> <li>• Mainlaying works and substantially reinstatements in Zone A1-2, A2-3D (Stage 2), C1-4 and A3-4A.</li> <li>• Grouting, pipe connection and reinstatement works in combined Zone A1-2A &amp; A1-3A.</li> <li>• Grouting, pipe connection and reinstatement works in Zone A1-3B.</li> <li>• Mainlaying works and substantially reinstatements in Zone A3-5A, A3-3B and footpath of Fenwick Pier Street.</li> <li>• Preparation works at Zone A3-3C for subsequent connection works.</li> <li>• The preparation works (including exposure of installed gate valve and repair of butterfly valve) at Convention Avenue for facilitating the changeover of cooling mains system of HKAPA.</li> <li>• The preparation works (including exposure of installed gate valve and repair of gate valve) at Convention Avenue for facilitating the changeover of cooling mains system of SOC.</li> <li>• Mainlaying works at Zone C1-2.</li> </ul>

December 2012	January 2013	February 2013
<p>(previously named B1-5A) and B6-5 (previously named B2-1)</p> <ul style="list-style-type: none"> <li>Final cleaning, CCTV inspection and pressure test for the 9 nos. cooling water mains 23 out of 27 sections of cooling mains pipeline has been satisfied the pressure test.</li> </ul> <p>E&amp;M</p> <ul style="list-style-type: none"> <li>Full commissioning test for Cooling Water Pumping Station P1</li> <li>Site test for all E&amp;M equipment and facilities in Cooling Water Pumping Station P5</li> <li>Preparation works including testing and commissioning of all E&amp;M equipment, BMS system and facilities in Cooling Water Pumping Station P3 and P4</li> </ul>	<p>named B2-1)</p> <ul style="list-style-type: none"> <li>Final cleaning, CCTV inspection and pressure test for the 9 nos. cooling water mains 25 out of 27 sections of cooling mains pipeline has been satisfied the pressure test.</li> </ul> <p>Tunnel Works</p> <ul style="list-style-type: none"> <li>Backfilling works on top of SCL protection works.</li> <li>Pre-bored H piling works for the proposed CWB and altogether 10 nos. and 9 nos. of pre-bored H piles.</li> <li>Pre-drilling works for CWB (Stage 2).</li> <li>Ground treatment works for proposed CWB diaphragm wall.</li> <li>Plant Mobilization for diaphragm wall construction works at Stage 2.</li> </ul> <p>E&amp;M</p> <ul style="list-style-type: none"> <li>Full commissioning test for Cooling Water Pumping Station P1</li> <li>Site test for all E&amp;M equipment and facilities in Cooling Water Pumping Station P5</li> </ul>	<ul style="list-style-type: none"> <li>Mainlaying works and coring works at external wall of seawater pumping stations for proposed sewerage system in Zone B6-1.</li> <li>Mainlaying works and substantially reinstatements in Zone B6-3 (previously named B1-5A) and B6-5 (previously named B2-1).</li> <li>Final cleaning, CCTV inspection and pressure test for the 9 nos. cooling water mains.</li> <li>CCTV inspection for cross-harbour water mains (land pipe at Wan Chai).</li> <li>Pressure test for cross harbour water mains (whole length of land pipes in Wan Chai).</li> <li>Trench excavation for HEC and PCCW cabling works connected to the proposed transformer rectifier at new reclaimed area.</li> </ul> <p>Tunnel Works</p> <ul style="list-style-type: none"> <li>Backfilling works on top of SCL protection works.</li> <li>Pre-bored H piling works for the proposed CWB stage 1b</li> <li>Pre-drilling works for CWB (Stage 2).</li> <li>Diaphragm wall construction works at Stage 2.</li> <li>Removal of remaining guide wall along Convention Avenue.</li> </ul> <p>E &amp; M</p> <ul style="list-style-type: none"> <li>Full commissioning test for Cooling Water Pumping Station P1.</li> <li>Site test for all E&amp;M equipment and facilities in Cooling Water Pumping Station P5.</li> <li>Initial commissioning test for Cooling Water Pumping Station P5.</li> </ul>

2.5.2. During this reporting period, the principal work activities for Contract no. HK/2009/02 are summarized in **Table 2.5**.

**Table 2.5 Principal Work Activities for Contract no. HK/2009/02**

December 2012	January 2013	February 2013
<ul style="list-style-type: none"> <li>• Concreting the slab with hanger wall for planting area (+13.55mPD) between G.L.3-6/B-C &amp; E-F on Observation Deck Level (+14.65mPD)</li> <li>• Concreting the base slab and wall of sprinkler water tank machine room and the slab of Machine Room</li> <li>• Installation of concrete block wall for store room 1 and room 2 on Level 1</li> <li>• Erecting the wall stem formwork for caisson seawall precast unit 2X on flat-top barge</li> <li>• Modification work of PTI at Expo Drive East</li> <li>• Modification work of bus station at Expo Drive East near EVA</li> <li>• Breaking up the existing covered walkway footing at Expo Drive East</li> <li>• Rectification works at bending block of cooling mains</li> <li>• E&amp;M works and ABWFs installation at WSD Salt Water Pumping Station</li> <li>• Drilling hole and installation of pipe bracket for aeration and chlorination pipe inside salt water intake culvert Bay 3 to Bay 5</li> <li>• Concreting of the structure at salt water intake culvert Bay 10 and Bay 11 at WCR1</li> <li>• Steel fixing of the shaft of Bay 2a in salt water intake seaside cofferdam</li> <li>• Breaking the existing concrete road slab for DN800 salt water mains at Ex-pet garden near gate 1</li> <li>• Installation the shoring to trial pit of the permanent connection point to existing DN 600 water main at Hung Hing Road was commenced</li> <li>• Installation of precast concrete short pipe extended from the existing 1800 drainage at Box Culvert N landside</li> </ul>	<ul style="list-style-type: none"> <li>• Modification work of PTI at Expo Drive East.</li> <li>• Concreting the retaining wall base slab of Bay1, Bay 2 and Bay 5 at Expo Drive East.</li> <li>• Rectification works at bending block of cooling mains.</li> <li>• E&amp;M works and ABWFs installation at WSD Salt Water Pumping Station.</li> <li>• Concreting infill mass concrete at both sides and concreting 1m width x 300mm high mass for cover M.J. at Bay 9 to Bay 11 in salt water intake landside cofferdam.</li> <li>• Backfilling grade 200mm rock material in the trench at Bay 6 to Bay 8 in salt water intake landside cofferdam.</li> <li>• Drilling hole and installation of pipe bracket for aeration and chlorination pipe inside salt water intake culvert Bay 3 to Bay 5.</li> <li>• The shafts of Intake chamber No.1 and No.2 for Bay 2A in salt water intake seaside cofferdam were casted the 2nd layer of the horizontal struts.</li> <li>• Placing concrete for bend blocks btw CHS8A 150-165 at Ex-pet garden near new Gate No.2.</li> <li>• Installation the shoring to trial pit of the permanent connection point to existing DN 600 water main at Hung Hing Road.</li> <li>• Saw cutting of southern diaphragm wall for the connection between existing drainage and Bay 1 of box culvert N1.</li> <li>• Laying 1800mm dia. concrete pipe for the connection between existing drainage and Bay 1 of box culvert N1.</li> <li>• Erecting formwork for concrete surround for concrete pipe.</li> <li>• Concreting of columns (total 6nos.) from M/F</li> </ul>	<ul style="list-style-type: none"> <li>• Modification work of PTI at Expo Drive East.</li> <li>• Modification of existing covered walkway along Expo Drive East.</li> <li>• Pressure tests and the necessary rectification works for the installed cooling water mains.</li> <li>• Backfilling for trench at the junction between Tonnochy Road and Harbour Road.</li> <li>• E&amp;M works and their T&amp;C in Cooling Water Pumping Stations P7, P8 and P9.</li> <li>• Wet Tests at WSD Salt Water Pumping Station.</li> <li>• Backfilling grade 200 mm rock materials from Bay 6 to Bay 11 in salt water intake landside cofferdam.</li> <li>• Drilling hole and installation of pipe bracket for aeration and chlorination pipe inside salt water intake culvert Bay 19B to Bay 24.</li> <li>• Diver work for excavation down to formation level at Bay 1B in salt water intake seaside cofferdam.</li> <li>• Mainlaying works for DN800 salt water mains (CHS8A) at Ex-Pet Garden.</li> <li>• Works for the Outfall B had been and the dye test.</li> <li>• Switching over works for sewage to WCE PTW.</li> <li>• RC structures for the proposed Ferry Pier.</li> <li>• Construction of eastern concrete staircase to Observation Deck Level.</li> <li>• Concreting of base slab with stem wall for PT2 &amp; PT3 at Level 1 (under +4.15mPD).</li> <li>• Installation of concrete block wall for store room 1 and store room 2 on Level 1.</li> <li>• Application of protective coating to proposed precast caisson seawall 2X</li> <li>• Eastern Bulkhead Wall, Panel BHP3, BHP7 and BHP9 were cast (3 out of 13 panels) and excavation for Panel BHP5.</li> </ul>

December 2012	January 2013	February 2013
	(+11.15mPD) to Observation Deck Level (+14.65mPD) and Slab with beam between G.L.1-3/B-F on Level 2 (+7.65mPD). <ul style="list-style-type: none"> <li>• Concreting of columns (total 9nos.) from Level 2 (+7.65mPD) to Observation Deck Level (+14.65mPD).</li> <li>• Concreting of portion 2 for column C2C from +11.65mPD to +13.90mPD up to Observation Deck Level (+14.65mPD).</li> <li>• Concreting of portion 1 for column C2E from +7.65mPD to +11.65mPD up to Observation Deck Level (+14.65mPD).</li> <li>• Steel fixing and Formwork erection to Observation Deck Level at from GL 3-8 &amp; 9-15.</li> <li>• Installation of concrete block wall for store room 1 and room 2 on Level 1.</li> <li>• Placing concrete of the final portion for precast scission seawall 2X.</li> </ul>	

2.5.3. Major construction activities for Contract no. HY/2009/15 was commenced on 10 November 2010. During this reporting period, the principal work activities for Contract no. HY/2009/15 are summarized as below:

**Table 2.6 Principal Work Activities for Contract no. HY/2009/15**

December 2012	January 2013	February 2013
<ul style="list-style-type: none"> <li>• TZ1 and TS2 reclamation works</li> <li>• Formation of temporary seawall at TS2</li> </ul>	<ul style="list-style-type: none"> <li>• TZ1 and TS2 reclamation works</li> <li>• Formation of temporary seawall at TS2</li> </ul>	<ul style="list-style-type: none"> <li>• Removal of eastern breakwater of CBTS</li> </ul>

2.5.4. Contract no. HK/2010/06 was commenced on 22 March 2011. During this reporting period, the principal work activities for Contract no. HK/2010/06 are summarized as below:

**Table 2.7 Principal Work Activities for Contract no. HK/2010/06**

December 2012	January 2013	February 2013
<ul style="list-style-type: none"> <li>• Sheet piling</li> <li>• Platform Disassembly</li> <li>• Bored pile casing cutting</li> <li>• Grouting</li> </ul>	<ul style="list-style-type: none"> <li>• Disassembly of staging platform</li> <li>• Pile case cutting</li> <li>• Sheet pile installation</li> <li>• Dredging</li> <li>• Construction of pre-cast unit in mainland China</li> </ul>	<ul style="list-style-type: none"> <li>• Sheet Piling Works</li> <li>• Utility Diversion Works</li> <li>• Precast Unit Box Construction (mainland China)</li> </ul>



2.5.5. Contract no. HY/2009/19 was commenced on 24 March 2011. During this reporting period, the principal work activities for Contract no. HY/2009/19 are summarized as below:

**Table 2.8 Principal Work Activities for Contract no. HY/2009/19**

December 2012	January 2013	February 2013
<ul style="list-style-type: none"> <li>• Marine bored piling</li> <li>• Construction works for Box Culvert T</li> <li>• Construction of 1500φ drainage pipe</li> </ul>	<ul style="list-style-type: none"> <li>• Road works at Watson Road</li> <li>• Bored piling (Land)</li> <li>• Pre-drilling works for bored pile and Diaphragm wall</li> <li>• D-wall Construction (North &amp; South Section)</li> <li>• Guide wall construction for D-wall / Barrette at North side</li> <li>• Construction works for Box Culvert T1</li> <li>• Marine Piling</li> <li>• Construction of socket-H pile</li> <li>• Construction works for Culvert U1</li> <li>• Construction of Pile cap &amp; column (Land)</li> <li>• Dismantling of marine platform</li> <li>• Demolition of parapet at IEC Link</li> <li>• Construction of Pile caps &amp; columns (Marine)</li> <li>• Cut &amp; Cover Tunnel sheet piling works and installation of King Post</li> <li>• Construction of dewatering well for Cut &amp; Cover Tunnel</li> </ul>	<ul style="list-style-type: none"> <li>• Road works at Watson Road</li> <li>• Bored piling (Land)</li> <li>• D-wall Construction (North &amp; South Section)</li> <li>• Guide wall construction for D-wall / Barrette at North side</li> <li>• Construction works for Box Culvert T1</li> <li>• Marine Piling</li> <li>• Construction of socket-H pile</li> <li>• Construction works for Culvert U1</li> <li>• Construction of Pile caps &amp; columns (Land)</li> <li>• Dismantling of marine platform</li> <li>• Demolition of parapet at IEC Link</li> <li>• Construction of Pile caps &amp; columns (Marine)</li> <li>• Construction of dewatering well for Cut &amp; Cover Tunnel</li> <li>• D8-D9 Gantry Fabrication for precast segment will continue</li> <li>• ELS for Cut &amp; Cover Tunnel will continue</li> </ul>

2.5.6. Implementation status of the recommended mitigation measures during this reporting period is presented in [Appendix 2.1](#).

### 3. MONITORING REQUIREMENTS

#### 3.1. Noise Monitoring

##### NOISE MONITORING STATIONS

- 3.1.1. The noise monitoring stations for the Project are listed and shown in **Table 3.1** and **Figure 3.1**. **Appendix 3.1** shows the established Action/Limit Levels for the monitoring works.

**Table 3.1 Noise Monitoring Stations**

Station	Description
M1a	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

##### REAL TIME NOISE MONITORING STATIONS

- 3.1.1. The real-noise monitoring stations for the Project are listed and shown in **Table 3.2** and **Figure 3.1**. **Appendix 3.1** shows the established Action/Limit Levels for the monitoring works.

**Table 3.2 Real Time Noise Monitoring Station**

District	Station	Description
Tin Hau	RTN1	FEHD Hong Kong Transport Section Whitefield Depot
North Point	RTN2	Oil Street Community Liaison Centre
North Point	RTN2a	Electric Centre

##### NOISE MONITORING PARAMETERS, FREQUENCY AND DURATION

- 3.1.2. The construction noise level shall be measured in terms of the A-weighted equivalent continuous sound pressure level ( $L_{eq}$ ).  $L_{eq(30\text{ minutes})}$  shall be used as the monitoring parameter for the time period between 0700 and 1900 hours on normal weekdays. For all other time periods,  $L_{eq(5\text{ minutes})}$  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.
- 3.1.3. 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.
- 3.1.4. 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.
- 3.1.5. Real time noise shall be carried out at the designated monitoring stations. The following is an initial guide on the regular monitoring frequency for each station on a 24 hours daily basis when noise generating activities are underway:
- One set of measurements between 0700 and 1900 hours on normal weekdays.
  - One set of measurements between 1900 and 2300 hours on normal weekdays and 0700 and 2300 hours on public holidays.
  - One set of measurements between 2300 and 0700 hours on next day on everyday.

#### MONITORING EQUIPMENT

- 3.1.6. As referred to in the Technical Memorandum <sup>TM</sup> 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.
- 3.1.7. 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.

### **3.2. Air Monitoring**

#### AIR QUALITY MONITORING STATIONS

- 3.2.1. The air monitoring stations for the Project are listed and shown in **Table 3.3** and **Figure 3.1**. **Appendix 3.1** shows the established Action/Limit Levels for the monitoring works.

**Table 3.3 Air Monitoring Stations**

Station ID	Monitoring Location	Description
CMA1b	Oil Street Community Liaison Centre	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
CMA5a	Children Playgrounds opposite to Pedestrian Plaza	Wan Chai

Station ID	Monitoring Location	Description
CMA6a	WDII PRE Site Office *	Wan Chai

\* Remarks: As per the ENPC meeting in January 2011, the monitoring stations CMA3a - Future CWB site office at Wanchai Waterfront Promenade and CMA6a - Future AECOM site office at Work Area were renamed as remark.

AIR MONITORING PARAMETERS, FREQUENCY AND DURATION

- 3.2.2. 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.
- 3.2.3. 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.
- 3.2.4. 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

- 3.2.5 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 cm<sup>2</sup>;
  - 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.
- 3.2.6 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

- 3.2.7 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.
- 3.2.8 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 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.
- 3.2.9 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.
- 3.2.10 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.
- 3.2.11 All the collected samples shall be kept in a good condition for 6 months before disposal.

### IMPACT MONITORING FOR ODOUR PATROL

- 3.2.12 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
- 3.2.13 Odour patrol shall be conducted by independent trained personnel / competent persons patrolling and sniffing around the shore as shown in **Figure 3.1** to detect any odour at the concerned hours (afternoon is preferred for higher daily temperature).
- 3.2.14 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.

3.2.15 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.

3.2.16 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 3.1**.

### 3.3 Water Quality Monitoring

3.3.1. 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.

3.3.2. 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

3.3.3. It is proposed to monitor the water quality at 9 WSD salt water intakes and 14 cooling water intakes along the seafront of the Victoria Harbour. The proposed water quality monitoring stations of the Project are shown in **Table 3.4** and **Figure 3.1**. **Appendix 3.1** shows the established Action/Limit Levels for the monitoring works.

**Table 3.4 Marine Water Quality Stations for Water Quality Monitoring**

Station Ref.	Location	Easting	Northing
<b>WSD Salt Water Intake</b>			
WSD7	Kowloon South	834150.0	818300.3
WSD9	Tai Wan	837921.0	818330.0
WSD10	Cha Kwo Ling	841900.9	817700.1
WSD15	Sai Wan Ho	841110.4	816450.1
WSD17	Quarry Bay	839790.3	817032.2
WSD19	Sheung Wan	833415.0	816771.0
WSD20	Kennedy Town	830750.6	816030.3

Station Ref.	Location	Easting	Northing
WSD21	Wan Chai	836220.8	815940.1
RW1	Wan Chai (Reprovision)	836188.8	815911.1
<b>Cooling Water Intake</b>			
C1	HKCEC Extension	835885.6	816223.0
C2	Telecom House	835647.9	815864.4
C3	HKCEC Phase I	835836.2	815910.0
C4e	Wan Chai Tower and Great Eagle Centre (Eastern)	835932.8	815888.2
C4w	Wan Chai Tower and Great Eagle Centre (Western)	835629.8	815889.2
C5e	Sun Hung Kai Centre (Eastern)	836250.1	815932.2
C5w	Sun Hung Kai Centre (Western)	836248.1	815933.2
C6	World Trade Centre	837009.6	815999.3
C7	Windsor House	837193.7	816150.0
C8	City Garden	837970.6	816957.3
C9	Provident Garden	838355.0	817116.6
RC1	Proposed HKAPA Extension	835487.7	815987.7
RC5	Sun Hung Kai Centre (Reprovision)	836291.4	816029.7
RC7	Windsor House (Temporary Dilution)	837245.2	816156.6

- Remarks: - The cessation of seawater intake operation for C6 was confirmed on 17 May 2011, the water monitoring at C6 was then terminated since 17 May 2011.
- WSD9 and WSD17 were implemented with respect to HK/2009/02 from 8 Feb 2012.
  - 4-week water quality monitoring at WSD9, WSD10, WSD15, WSD17, C8 and C9 were completed on 6 Feb 2012.
  - C8 and C9 were implemented with respect to HY/2009/19 from 28 Jan 2012.
  - WSD7 and WSD20 water quality monitoring were temporarily suspended from 27 Apr 2012.

#### WATER QUALITY PARAMETERS AND FREQUENCY

- 3.3.4. 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.
- 3.3.5. 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.
- 3.3.6. 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 3.5** 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 3.5 Marine Water Quality Monitoring Frequency and Parameters**

Activities	Monitoring Frequency <sup>1</sup>	Parameters <sup>2</sup>
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

- 3.3.7. 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
- 3.3.8. 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).
- 3.3.9. 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

- 3.3.10 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

- 3.3.11 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

- 3.3.12 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

- 3.3.13 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

- 3.3.14 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

- 3.3.15 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

- 3.3.16 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.
- 3.3.17 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.
- 3.3.18 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.

### LABORATORY MEASUREMENT / ANALYSIS

- 3.3.19 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

- 3.3.10. 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.
- 3.3.11. 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 3.6** and **Figure 3.1**.

**Table 3.6 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

- 3.3.12. 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 less than 3m, only the mid-depth will be monitored).

DAILY SS MONITORING AND 24 HOURS TURBIDITY MONITORING SYSTEM

- 3.3.13. 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.
- 3.3.14. The 24 hours monitoring of turbidity 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 shall be downloaded daily and compared with the Action and Limit level determined during the baseline water quality monitoring at the cooling water intake locations.

ADDITIONAL DISSOLVED OXYGEN MONITORING FOR CULVERT L WATER DISCHARGE FLOW

- 3.3.15 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.

3.3.16 The proposed DO monitoring stations of the Project are shown in Table 3.7

**Table 3.7 Marine Water Quality Stations for Additional DO Monitoring**

Station	Easting	Northing
A	835468	815857
B	835572	815961
C	835659	816271

3.3.17 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).

**4. MONITORING RESULTS**

4.0.1. 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 3.1**. The monitoring results are presented in according to the Individual Contract(s).

4.0.2 The major work activities for Contract no. HY/2009/11 was confirmed substantial complete by RSS on 4 January 2012. The FEP surrender application was submitted to EPD by contractor on 16 Jan 2012 that they would surrender the permit on 1 Jan 2012. Moreover, the construction site was handed over to contractor HY/2009/19 on 4 January 2012. However, the surrender of the FEP for HY/2009/11 withdrew by contractor on 14 February 2012 due to some outstanding works was confirmed by RSS on 10 Feb 2012. Therefore, the noise, air and water quality monitoring were keeping in view for the commencement of the works under this contract. No construction activity was conducted by HY/2009/11 up to 4 January 2012.

4.0.3 According to EP-364/2009/A Part B, “Scale and Scope of Designated Project”, Remarks (c),”The permanent and temporary reclamation and associated dredging works related to the CWB construction are separately covered by environmental permit No. EP-356/2009 issued to Civil Engineering and Development Department”, and marine piling works to be conducted by the Contractor of Contract no. HY/2009/19 from 28 January 2012 was considered to be governed under EP-356/2009. As the construction site area of Contract no. HY/2009/11 had already been handed over to Contract no. HY/2009/19, the designated noise, water and air quality monitoring stations for Contract no. HY/2009/11 would be shared with Contract no. HY/2009/19 from 28 January 2012.

**4.1. Noise Monitoring Results**

Contract no. HK/2009/01 - Wan Chai Development Phase II – Central –Wanchai Bypass at HKCEC and Contract no. HK/2009/02 - Wan Chai Development Phase II – Central – Wan Chai Bypass at WanChai East and Contract no. HK/2010/06 Wan Chai Development Phase II – Central-Wan Chai Bypass over MTR Tsuen Wan Line

4.1.1. The proposed divisions of noise monitoring stations are summarized in **Table 4.1** below.

**Table 4.1 Noise Monitoring Station for Contract nos. HK/2009/01 and HK/2009/02 and HK/2010/06**

Station	Description
M1a	Harbour Road Sports Centre

4.1.2. No action level and two limit level exceedance was recorded on 24 and 29 Jan 2013 in the reporting quarter. Non-CWB project drilling works nearby was observed during noise monitoring and considered as the major noise contribution. As such, the exceedance was not related to the Project. Details of noise monitoring results and graphical presentation can be referred in **Appendix 4.1**.

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

4.1.3. The noise monitoring for HY/2009/15 was commenced on 10 November 2010. The proposed division of noise monitoring stations are summarized in **Table 4.2** below.

**Table 4.2 Noise Monitoring Station for Contract nos. HY/2009/15**

Station	Description
M2b	Noon Gun Area
M3a	Tung Lo Wan Fire Station

4.1.4. There was no exceedance recorded in this reporting period. The noise complaint was recorded on 5 April 2012. Details of noise monitoring results and graphical presentation can be referred in **Appendix 4.1**

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

4.1.5. Noise quality monitoring at M4b and M5b have been implemented with respect to HY/2009/19 since the marine bore piling work started on 28 Jan 2012.

4.1.6. The proposed division of noise monitoring stations for Contract no. HY/2009/19 are summarized in **Table 4.3** below:

**Table 4.3 Noise Monitoring Stations for Contract no. HY/2009/19**

Station	Description
M3a	Tung Lo Wan Fire Station
M4b	Victoria Centre
M5b	City Garden
M6	HK Baptist Church Henrietta Secondary School

4.1.7. Thirteen limit level exceedance was recorded at M6 on 29 November 2012, 11, 17 and 27 December 2012, 3, 8, 15, 24 and 29 January 2013, 7, 15, 19 and 26 February 2013 during this reporting quarter. Major traffic jam and no major work activities were observed during monitoring, the exceedances were considered as non-project related. Noise monitoring results measured in this reporting period are reviewed and summarized. Details of graphical presentation can be referred in **Appendix 4.1**.

**4.2. Real Time Noise Monitoring Results**

4.2.1 As the land-based piling and filling works- DP3 at Tin Hau had been completed on 3 September 2012 and confirmed by RSS, the real-time noise monitoring results at FEHD Hong Kong Transport Section Whitfield Depot was excluded under EP-356/2009 since 28 November 2012.

- 4.2.2 The real-time noise monitoring results at RTN1 (FEHD Hong Kong Transport Section Whitfield Depot) was excluded under EP-356/2009 since 28 October 2012, as the land-based piling and filling works- DP3 at Tin Hau had been completed on 3 September 2012 and confirmed by RSS
- 4.2.3 Oil Street Community Liaison Centre was confirmed to be demolished in mid-October by CWB RSS. This presented a need for relocation of RTN2 – Oil Street Community Liaison Centre. After liaison with Hong Kong Electric, permission was granted on 21 Sep 2012 for real time noise monitoring set up at City Garden Electric Centre (RTN2a – Electric Centre), which is a representative of the noise sensitive receiver City Garden. The real-time noise monitoring at RTN2-Oil Street Community Liaison Centre has been relocated to City Garden Electric Centre (RTN2a- Electric Centre) on 5 Oct 2012. The baseline noise level of RTN2a will adopt the results derived from the baseline noise monitoring conducted in Electric Centre from 4 December 2009 to 17 December 2009.

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

- 4.2.4 The proposed divisions of real time noise monitoring stations are summarized in **Table 4.4** below. Real time noise monitoring for the marine bored piling works under contract no. HY/2009/19 was commenced on 28 January 2012.
- 4.2.5 Real-time noise monitoring at FEHD Hong Kong Transport Section Whitefield Depot commenced external wall renovation since 1 June 2012
- 4.2.6 The major work activities for Contract no. HY/2009/11 was confirmed substantial complete by RSS on 4 January 2012. The construction site was handed over to contractor HY/2009/19 on 31 December 2011 in this reporting period and the FEP-01/356/2009 was surrendered on 22 October 2012. The monitoring was temporary suspended since 5 January 2012.
- 4.2.7 Limit level exceedance was recorded at RTN2a-Electric Centre on 7 Dec 2012 in the reporting quarter. After checking with contractor, no major noisy construction works were conducted during the time period and the non CWB project construction activities near Electric Centre was considered to be the major source of noise impact. As such, the exceedance was concluded as non-project related.
- 4.2.8 Limit level exceedances were recorded at RTN2a-Electric Centre during daytime on 31 Jan 2013 and during restricted hours on 5, 11 and 12 Feb 2013. After checking with contractor, on 31 Jan 2013, no noisy construction activities were undertaken during the recorded period. The exceedance was non-continuous and considered to be contributed by the IEC traffic. On 11 and 12 Feb 2013, no construction activities were conducted and the exceedances were considered to be contributed by the Chinese New Year pyrotechnic display and IEC traffic respectively. As such, the exceedances were concluded as non-project related. **Appendix 4.2**

**Table 4.4 Real Time Noise Monitoring Station for Contract no. HY/2009/11 and HY/2009/19**

District	Station	Description
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Tin Hau	RTN1	FEHD Hong Kong Transport Section Whitefield Depot
North Point	RTN2	Oil Street Community Liaison Centre
North Point	RTN2a	Electric Centre

- Real time noise monitoring results and graphical presentation during night time period are for information only.
- RTN2 had been relocated to RTN2a since 5 Oct 2012
- RTN1 monitoring had been finished on 28 Nov 2012

### 4.3. Air Monitoring Results

4.3.1. Due to extension of site boundary by contractor of HY/2009/19, location of air monitoring station CMA1b – Oil Street Community Liaison Centre has been finely adjusted on 21 April 2012.

4.3.2. Due to lack of electricity supply, the 24-hr TSP monitoring at the following stations were rescheduled

CMA2a: from 13 December 2012 to 14 December 2012

CMA3a: from 22 December 2012 to 24 December 2012  
from 26 Jan 2013 to 28 Jan 2013

CMA6a: from 1 December 2012 to 3 December 2012

CMA5a: from 26 Feb 2013 to 27 Feb 2013

#### Contract no. HY/2009/11 – Central – Wanchai Bypass, North Point Reclamation

4.3.3. The major work activities for Contract no. HY/2009/11 was confirmed substantial complete by RSS on 4 January 2012. The construction site was handed over to contractor HY/2009/19 and the FEP-01/356/2009 was surrendered on 22 October 2012. The monitoring for the contract was temporary suspended on 6 January 2012.

#### Contract no. HK/2009/01 - Wan Chai Development Phase II – Central –Wanchai Bypass at HKCEC

4.3.4. Air monitoring was commenced on 1 April 2011 in response to the commencement of the land-filling work for Contract no. HK/2009/01. The proposed division of air monitoring stations are summarized in **Table 4.6** below. No exceedance was recorded in the reporting period.

**Table 4.6 Air Monitoring Stations for Contract no. HK/2009/01**

Station	Description
CMA5a	Children Playgrounds opposite to Pedestrian Plaza
CMA6a	WDII PRE Site Office *

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

- 4.3.5. 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 is summarized in **Table 4.7** below. No exceedance was recorded in the reporting period.

**Table 4.7 Air Monitoring Station for Contract no. HK/2009/02**

Station	Description
CMA4a	Society for the Prevention of Cruelty to Animals

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

- 4.3.6. Air monitoring was commenced on 15 March 2011 for the land filling work for Contract no. HY/2009/15. The proposed division of air monitoring stations are summarized in **Table 4.8** below. No exceedance was recorded in the reporting period.

**Table 4.8 Air Monitoring Station for Contract no. HY/2009/15**

Station	Description
CMA3a	CWB site office at Wanchai Waterfront Promenade

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

- 4.3.7. Air monitoring at CMA1b and CMA2a have been implemented with respect to HY/2009/19 since the marine bore piling works started on 28 Jan 2012. No exceedance was recorded in the reporting period.
- 4.3.8. The proposed division of air monitoring stations is summarized in **Table 4.9** below.

**Table 4.9 Air Monitoring Stations for Contract no. HY/2009/19**

Station	Description
CMA1b	Oil Street Community Liaison Centre
CMA2a	Causeway Bay Community Centre

#### 4.4 Water Monitoring Results

Contract no. HY/2009/11 – Central – Wanchai Bypass, North Point Reclamation

- 4.4.1. The major work activities for Contract no. HY/2009/11 was confirmed substantial complete by RSS on 4 January 2012. The construction site was handed over to contractor HY/2009/19 on 31 December 2011 and the FEP-01/356/2009 was valid in this reporting period.



4.4.2. Water quality monitoring for Contract no. HY/2009/11 was commenced on 19 March 2010. The proposed division of water monitoring stations for Contract no. HY/2009/11 is summarized in **Table 4.10** below:

**Table 4.10 Water Monitoring Stations for Contract no. HY/2009/11**

Station Ref.	Location	Easting	Northing
<b>WSD Salt Water Intake</b>			
WSD9	Tai Wan	837921.0	818330.0
WSD10	Cha Kwo Ling	841900.9	817700.1
WSD15	Sai Wan Ho	841110.4	816450.1
WSD17	Quarry Bay	839790.3	817032.2
<b>Cooling Water Intake</b>			
C8	City Garden	837970.6	816957.3
C9	Provident Garden	838355.0	817116.6

Remarks: WSD9, WSD10, WSD15, WSD17. C8 and C9 water monitoring finished on 6 Feb 2012.

Contract no. HK/2009/01 - Wan Chai Development Phase II – Central –Wanchai Bypass at HKCEC

- 4.4.3. Water quality monitoring for Contract no. HK/2009/01 was commenced on 23 July 2010. The proposed division of water monitoring stations is summarized in **Table 4.11** below.
- 4.4.4. Due to the blockage of road access to C1 on 15 Dec 2012 during mid-flood, the water quality monitoring was cancelled at C1 on 15 December 2012 during mid-flood.
- 4.4.5. Due to the blockage of road access to C2 on 7 Jan 2013 during mid-flood, the water quality monitoring at C2 was cancelled on 7 Jan 2013 during mid-flood.

**Table 4.11 Water Monitoring Stations for Contract no. HK/2009/01**

Station Ref.	Location	Easting	Northing
<b>WSD Salt Water Intake</b>			
WSD7	Kowloon South	834150.0	818300.3
WSD19	Sheung Wan	833415.0	816771.0
WSD20	Kennedy Town	830750.6	816030.3
<b>Cooling Water Intake</b>			
C1	HKCEC Extension	835885.6	816223.0
C2	Telecom House	835647.9	815864.4
C3	HKCEC Phase I	835836.2	815910.0
C4e	Wan Chai Tower and Great Eagle Centre (Eastern)	835932.8	815888.2
C4w	Wan Chai Tower and Great Eagle Centre (Western)	835629.8	815889.2

Remarks:

- The water monitoring stations for the dredging works under Contract No. HK/2009/01 should also include WSD9, WSD17, WSD 21 and C5 if water quality monitoring at these locations have not been

carried out by others. Similarly, the water monitoring stations for the dredging works under Contract No. HK/2009/02 should also include WSD7, WSD9, WSD17, WSD 19, C1, C2, C3 and C4 if water quality monitoring at these locations have not been carried out by others.

- WSD7 and WSD20 water quality monitoring were temporarily suspended since 27 Apr 2012.

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

- 4.4.6. Water quality monitoring for Contract no. HK/2009/02 was commenced on 8 July 2010. The proposed division of water monitoring stations is summarized in **Table 4.12** below.
- 4.4.7. Due to the blockage of road access to C5e and C5w on 7 Jan 2013 during mid-ebb tide and 9, 11, 14 Jan the sample was taken under contingency C5 on 7 Jan 2013 during mid-ebb and 9, 11, 14 Jan during mid-flood and mid-ebb.
- 4.4.8. Due to the lack of lighting on the road access to C5e and C5w on 4 Feb 2013 during mid-ebb tide the sample was taken under contingency C5 on 4 Feb 2013 during mid-ebb

**Table 4.12 Water Monitoring Stations for Contract no. HK/2009/02**

Station Ref.	Location	Easting	Northing
<b>WSD Salt Water Intake</b>			
WSD21	Wan Chai	836220.8	815940.1
WSD9	Sheung Wan	833415.0	816771.0
WSD17	Kennedy Town	830750.6	816030.3
<b>Cooling Water Intake</b>			
C5e	Sun Hung Kai Centre (Eastern)	836250.1	815932.2
C5w	Sun Hung Kai Centre (Western)	836248.1	815933.2

Remarks:

- The water monitoring stations for the dredging works under Contract No. HK/2009/01 should also include WSD9, WSD17, WSD 21 and C5 if water quality monitoring at these locations have not been carried out by others. Similarly, the water monitoring stations for the dredging works under Contract No. HK/2009/02 should also include WSD7, WSD9, WSD17, WSD 19, C1, C2, C3 and C4 if water quality monitoring at these locations has not been carried out by others.
- Water quality monitoring at WSD9 and WSD 17 was implemented with respect to HK/2009/02 from 8 Feb 2012.

Contract no. HK/2010/06 - Wan Chai Development Phase II – Central –Wanchai Bypass over MTR Tsuen Wan Line

- 4.4.9. Water monitoring for Contract no. HK/2010/06 was commenced on 8 March 2011. The proposed division of water monitoring stations are summarized in **Table 4.13** below.
- 4.4.10. Due to the blockage of road access to C2 on 7 Jan 2013 during mid-flood, the water quality monitoring at C2 was cancelled on 7 Jan 2013 during mid-flood.

**Table 4.13 Water Monitoring Stations for Contract no. HK/2010/06**

Station Ref.	Location	Easting	Northing
<b>Cooling Water Intake</b>			

Station Ref.	Location	Easting	Northing
C2	Telecom House	835647.9	815864.4

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

- 4.4.11. Due to the commencement of the maintenance dredging on 10 November 2010, water quality monitoring for Contract no. HY/2009/15 was commenced on 9 November 2010. The proposed division of water monitoring stations is summarized in **Table 4.14** below.

**Table 4.14 Water Monitoring Stations for Contract no. HY/2009/15**

Station Ref.	Location	Easting	Northing
<b>Cooling Water Intake</b>			
C6	Excelsior Hotel	837009.6	815999.3
C7	Windsor House	837193.7	816150

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

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

- 4.4.12. Due to the commencement of the marine bored piling on 28 Jan 2012, water quality monitoring for Contract no. HY/2009/19 was commenced on 28 Jan 2012. The proposed division of water monitoring stations are summarized in **Table 4.15** below.
- 4.4.13. As confirmed by HY/2009/19 contractor, there was no marine work to be conducted on 26 December 2012, water quality monitoring at C8 and C9 were temporary suspended on 26 December 2012 during mid-ebb and mid-flood.

**Table 4.15 Water Monitoring Stations for Contract no. HY/2009/19**

Station Ref.	Location	Easting	Northing
<b>Cooling Water Intake</b>			
C8	City Garden	837970.6	816957.3
C9	Provident Garden	838355.0	817116.6

Remarks: C8 and C9 water monitoring commenced on 28 Jan 2012.

- 4.4.14. Water quality monitoring was cancelled on 12 February 2013 due to closing of construction site within the Chinese New year Holiday.
- 4.4.15. Based on the joint inspection on 4 Jan 2012 for the NPR area, the 4-week water quality monitoring at WSD9, WSD10, WSD15, WSD17, C8, C9 to confirm no water deterioration with respect to NPR was commenced since 7 Jan 2012 and it was completed on 6 February 2012.
- 4.4.16. Water quality monitoring at WSD10 and WSD15 was temporary suspended while water quality monitoring at WSD9 and WSD17 was implemented with respect to HK/2009/02 from 8 Feb 12 onwards;

- 4.4.17. Water quality monitoring at C8 and C9 have been implemented with respect to HY/2009/19 since the marine bore piling work started on 28 Jan 12.
- 4.4.18. Based on the safety concern when external façade refurbishment was conducted by contractor employed by Provident Center (C9) between 9 January 2012 to 30 July 2012 which caused to the inaccessibility of sampling either land and marine since 3 Feb 2012, there is a fine adjustment of the sampling location of water quality monitoring at C9 since 10 March 2012 to the closest accessible point prior to the completion of the external façade refurbishment work.
- 4.4.19. With respect to the trial dredging at WCR2 was scheduled on 20, 22, 24, 25 March and 1, 3, 11, 13, 15, 17, 19, 20 Apr and 3 May 2012, on-going water quality monitoring results at WSD21 during this period was checked and indicated that there was no contribution due to the trial dredging operation. Enhanced review of water quality around WCR2 was also implemented and no deterioration in the water quality was observed.
- 4.4.20. Due to the access of water monitoring station at WSD19 was blocked by LCSD construction works from 3 April 2012 to 2 May 2012 and lead to the inaccessibility of sampling either land and marine, there is a fine adjustment of the sampling point of WSD 19 since 5 April 2012 to the closest accessible point prior to the completion of the construction activities.
- 4.4.21. Due to the dredging works for Cross Harbour Water Mains from Wan Chai to Tsim Sha Tsui-DP6 was completed on 26 March 2012, the temporary suspension of impact water quality monitoring at WSD7 and WSD20 after 27 April 2012 for the water quality monitoring at WSD7 and WSD20 have been monitored for 4-week period after the completion of DP6 to confirm no water deterioration.
- 4.4.22. As per the meeting with the representative of Excelsior Hotel and World Trade Centre on 17 May 2011, they confirmed that the seawater intake for The Excelsior was no longer in use and replaced by the connected permanent water supply from WSD pipelines since 11 January 2011. Thus, the impact water quality monitoring for the cooling intake - C6 was terminated effective from 26 May 2011.
- 4.4.23. 24 hours monitoring of turbidity at the cooling water intakes at C7 was conducted. With respect to the seawall collapsing at TS4 on 17 November 2011, the 24 hours turbidity monitoring and was kept in November 2011. Since the reinstating the seawall was completed on 13 January 2012 and no any water deterioration was performed, 24 hour turbidity monitoring was then suspended on 27 January 2012.
- 4.4.24. Investigations were found that 6 turbidity and 5 SS exceedances which were Project-related to Contract no. HK/2009/02 in October 2012. The details of the recorded exceedances can be referred to the Section 5.4.
- 4.4.25. The enhanced water quality monitoring at C6, C7, Ex-WPCWA-SW and Ex-WPCWA-SE was commenced on 13 January 2011. No project-related exceedance was recorded in the daily SS monitoring and 24 hours turbidity monitoring.

4.4.26. Water monitoring results measured in this reporting period are reviewed and summarized in **Table 4.16**. Details of water quality monitoring results and graphical presentation can be referred in **Appendix 4.3**.

**Table 4.16 Summary of Water Quality Monitoring Exceedances in Reporting period**

Contract no.	Water Monitoring Station	Mid-flood						Mid-ebb					
		DO		Turbidity		SS		DO		Turbidity		SS	
		AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL
HY/2009/11 Monitoring finished on 6 Feb 2012	WSD9	0	0	0	0	0	0	0	0	0	0	0	0
	WSD10	0	0	0	0	0	0	0	0	0	0	0	0
	WSD15	0	0	0	0	0	0	0	0	0	0	0	0
	WSD17	0	0	0	0	0	0	0	0	0	0	0	0
	C8	0	0	0	0	0	0	0	0	0	0	0	0
	C9	0	0	0	0	0	0	0	0	0	0	0	0
HK/2009/01	WSD19	1	0	1	2	0	2	0	0	2	0	0	2
	C1	0	0	1	1	0	0	0	0	0	0	0	0
	C3	2	0	0	0	1	0	0	0	0	0	0	0
	C4e	0	0	0	1	0	0	0	0	0	0	0	0
	C4w	0	0	1	0	1	0	0	0	0	0	0	0
Monitoring finished on 27 April 2012	WSD20	0	0	0	0	0	0	0	0	0	0	0	0
	WSD7	0	0	0	0	0	0	0	0	0	0	0	0
HK/2009/01 & HK/2010/06	C2	0	0	0	1	1	0	0	0	0	0	0	0
HK/2009/02 Monitoring started on 8 Feb 2012	C5e	0	0	0	0	0	0	0	0	1	1	0	1
	C5w	0	0	1	0	1	0	0	0	1	0	0	0
	WSD21	0	1	0	2	0	2	1	0	0	1	1	1
	WSD9	1	0	0	0	0	0	0	0	0	0	0	0
	WSD17	0	0	0	0	0	0	0	0	0	0	0	0
HY/2009/15	C7	0	0	0	0	0	0	0	0	0	0	0	0
HY/2009/19 Monitoring started on 28 Jan 2012	C8	0	0	1	0	0	0	0	0	2	2	0	0
	C9	0	0	3	1	3	0	0	0	0	0	0	0
<b>Total</b>		4	1	8	8	7	4	1	0	6	4	1	4

- Remarks:
- The cessation of seawater intake operation for C6 was confirmed on 17 May 2011, the water monitoring at C6 was then terminated since 17 May 2011.
  - WSD9 and WSD17 were implemented with respect to HK/2009/02 from 8 Feb 2012.
  - 4-week water quality monitoring at WSD9, WSD10, WSD15, WSD17, C8 and C9 were completed on 6 Feb 2012.
  - C8 and C9 were implemented with respect to HY/2009/19 from 28 Jan 2012.
  - WSD7 and WSD20 were temporarily suspended from 27 Apr 2012

4.4.27. Enhanced DO monitoring at 4 monitoring stations in Causeway Bay Typhoon Shelter and Ex-Public Cargo Works Area was conducted three days per week during the reporting period.

The action and limit level exceedances of water quality monitoring are summarized in **Table 4.16a**.

**Table 4.16a Summary of Enhanced Dissolved Oxygen Monitoring Exceedances in Reporting period**

Contract no.	Water Monitoring Station	Mid-flood		Mid-ebb	
		DO		DO	
		AL	LL	AL	LL
HY/2009/15	C6	0	0	0	0
	C7	2	0	0	0
	Ex-WPCWA SW	1	4	0	2
	Ex-WPCWA SE	6	9	5	1
<b>Total</b>		<b>9</b>	<b>13</b>	<b>5</b>	<b>3</b>

4.4.28. There was no exceedance in this reporting period are reviewed and summarized. Details of graphical presentation can be referred in **Appendix 4.3**.

#### 4.5 Waste Monitoring Results

Contract no. HK/2009/01 - Wan Chai Development Phase II – Central –Wanchai Bypass at HKCEC

4.5.1. No Inert C&D waste was disposed and non-inert C&D waste was disposed of for the site preparation works in this reporting period. Details of the waste flow table are summarized in **Table 4.18**.

**Table 4.18 Details of Waste Disposal for Contract no. HK/2009/01**

Waste Type	Quantity this quarter	Cumulative Quantity-to-Date	Disposal / Dumping Grounds
Inert C&D materials disposed, m <sup>3</sup>	0	22245.415	TKO137, TM38
Inert C&D materials recycled, m <sup>3</sup>	0	5104.5	N/A
Non-inert C&D materials disposed, m <sup>3</sup>	142.4	1234.48	SENT Landfill
Non-inert C&D materials recycled, kg	0	151143	N/A
Chemical waste disposed, kg	750	9000	N/A
Marine Sediment (Type 1 – Open Sea Disposal), m <sup>3</sup>	6264 (Bulk Volume)	97428.2 (Bulk Volume)	South of Cheung Chau
Marine Sediment (Type 1 – Open Sea Disposal (Dedicate Sites) & Type 2 – Confined Marine	8465 (Bulk Volume)	52250 (Bulk Volume)	East of Cha Chau

Waste Type	Quantity this quarter	Cumulative Quantity-to-Date	Disposal / Dumping Grounds
Disposal), m <sup>3</sup>			
Dredged Sediment Requiring Type 3 – Special Treatment / Disposal contained in Geosynthetic Containers	0 (Bulk Volume)	6773 (Bulk Volume)	East of Cha Chau

Remarks: Contractor updated the quantity of Marine Sediment (Type 1 – Open Sea Disposal) in February 2013.

- 4.5.2. There were Marine Sediment (Type 1 – Open Sea Disposal) and Marine Sediment (Type 1- Open Sea Disposal (Dedicate Sites) & Type 2- Confined Marine Disposal) disposed of in this reporting quarter.

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

- 4.5.3. Inert and non-inert C&D waste were disposed of for the site preparation works in this reporting period. Details of the waste flow table are summarized in **Table 4.19**.

**Table 4.19 Details of Waste Disposal for Contract no. HK/2009/02**

Waste Type	Quantity this quarter	Cumulative Quantity-to-Date	Disposal / Dumping Grounds
Inert C&D materials disposed, m <sup>3</sup>	9965.05	229382.08	TKO137/ TM 38
Inert C&D materials recycled, m <sup>3</sup>	NIL	18161	N/A
Non-inert C&D materials disposed, m <sup>3</sup>	111.485	808.855	SENT Landfill
Non-inert C&D materials recycled, m <sup>3</sup>	NIL	NIL	N/A
Chemical waste disposed, kg	350	6036	SENT Landfill
Marine Sediment (Type 1 – Open Sea Disposal), m <sup>3</sup>	NIL	154,827 (Bulk volume)	South of Cheung Chau
Marine Sediment (Type 1 – Open Sea Disposal (Dedicate Sites) & Type 2 – Confined Marine Disposal), m <sup>3</sup>	2174	117420 (Bulk volume)	East of Sha Chau

Remarks: Contractor clarify the dumping of Type 1 – Open Sea Disposal (Dedicate Sites) in December reporting month is 662 m<sup>3</sup>

- 4.5.4. There were Marine Sediment (Type 1- Open Sea Disposal (Dedicate Sites) & Type 2- Confined Marine Disposal) disposed of in this reporting quarter.

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

4.5.5. No inert and non-inert C&D waste were disposed of for the site preparation works in this reporting period. Details of the waste flow table are summarized in **Table 4.20**.

**Table 4.20 Details of Waste Disposal for Contract no. HY/2009/15**

Waste Type	Quantity this quarter	Cumulative Quantity-to-Date	Disposal / Dumping Grounds
Inert C&D materials disposed, m <sup>3</sup>	NIL	141579.2	Tuen Mun Area 38
	NIL	65216	TKO137 FB
Inert C&D materials recycled, m <sup>3</sup>	NIL	184.0	To Contract HY/2009/11
	NIL	304	Ex-PCWA
	NIL	111.9	TS4
Non-inert C&D materials disposed, m <sup>3</sup>	NIL	252.2	SENT Landfill
Non-inert C&D materials recycled, kg	NIL	299361.5	N/A
Chemical waste disposed, kg	NIL	8,200	N/A
Marine Sediment (Type 1 – Open Sea Disposal) , m <sup>3</sup>	2351	100,208 (Bulk Volume)	South of Cheung Chau
Marine Sediment (Type 1 – Open Sea Disposal (Dedicate Sites) & Type 2 – Confined Marine Disposal) , m <sup>3</sup>	11,380	218,665 (Bulk Volume)	East of Sha Chau
Marine Sediment (Type 3 – Special Treatment / Disposal contained in Geosynthetic Containers)	0	7,050 (Bulk Volume)	East of Sha Chau

4.5.6. There was marine sediment (Type 1- Open Sea Disposal) and Marine Sediment (Type 1 – Open Sea Disposal (Dedicate Sites) & Type 2 – Confined Marine Disposal) were disposed in this reporting quarter.

Contract no. HK/2010/06 - Wan Chai Development Phase II – Central –Wanchai Bypass over MTR Tsuen Wan Line

4.5.7. Non-inert C&D and Inert C&D waste were disposed of for the site preparation works in this reporting period. Details of the waste flow table are summarized in **Table 4.21**.

**Table 4.21 Details of Waste Disposal for Contract no. HK/2010/06**

Waste Type	Quantity this month	Cumulative Quantity-to-Date	Disposal / Dumping Grounds
Inert C&D materials disposed, m <sup>3</sup>	0	11873	TM38
Inert C&D materials recycled,	0	267	N/A



Waste Type	Quantity this month	Cumulative Quantity-to-Date	Disposal / Dumping Grounds
m <sup>3</sup>			
Non-inert C&D materials disposed, m <sup>3</sup>	0	50.15	N/A
Non-inert C&D materials recycled, m <sup>3</sup>	0	60.58	N/A
Chemical waste disposed, L	0	2200	N/A
Marine Sediment (Type 1 – Open Sea Disposal), m <sup>3</sup>	197 (Bulk Volume)	3,891 (Bulk Volume)	South Cheung Chau
Marine Sediment (Type 1 – Open Sea Disposal (Dedicate Sites) & Type 2 – Confined Marine Disposal) , m <sup>3</sup>	289 (Bulk Volume)	12,586 (Bulk Volume)	East Sha Chau

Remark: The Contractor updated the cumulative quantity of disposed and recycled Inert C&D materials, disposed and recycled Non-Inert C&D materials and chemical waste disposed in February 2013

- 4.5.8. There was marine sediment (Type 1- Open Sea Disposal) and Marine Sediment (Type 1 – Open Sea Disposal (Dedicate Sites) & Type 2 – Confined Marine Disposal) were disposed in this reporting quarter.

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

- 4.5.9. Inert and non-inert C&D waste were disposed of in this reporting quarter

**Table 4.22 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 <sup>3</sup>	60,323.69	153,914.93	TM38
Inert C&D materials recycled, m <sup>3</sup>	0	1323	N/A
Non-inert C&D materials disposed, m <sup>3</sup>	106.83	258.36	N/A
Non-inert C&D materials recycled, kg	70.66	181.88	N/A
Chemical waste disposed, L	NIL	0.29	N/A
Marine Sediment (Type 1 – Open Sea Disposal), m <sup>3</sup>	83	83	South Cheung Chau
Marine Sediment (Type 1 – Open Sea Disposal (Dedicate Sites) & Type 2 – Confined Marine Disposal) , m <sup>3</sup>	182	664	East Sha Chau

Remark: After checking, the latest amount of cumulative quantity-to-date of non-inert C&D materials disposed and recycled have been updated.



4.5.10. There were marine sediments Type1- Open Sea Disposal and Type 1 – Open Sea Disposal (Dedicate Sites) & Type 2 – Confined Marine Disposal dredging from bore-piling casing in the reporting period.

**5. COMPLIANCE AUDIT**

5.0.1. The Event Action Plan for construction noise, air quality and water quality are presented in **Appendix 5.1**.

**5.1. Noise Monitoring**

4.1.8. Thirteen limit level exceedance was recorded at M6 on 29 November 2012, 11, 17 and 27 December 2012, 3, 8, 15, 24 and 29 January 2013, 7, 15, 19 and 26 February 2013 during this reporting quarter. Major traffic jam and no major work activities were observed during monitoring, the exceedances were considered as non-project related. Noise monitoring results measured in this reporting period are reviewed and summarized. Details of graphical presentation can be referred in **Appendix 4.1**.

**5.2. Real-time Noise Monitoring**

5.2.1 Limit level exceedance was recorded at RTN2a-Electric Centre on 7 Dec 2012 in the reporting quarter. After checking with contractor, no major noisy construction works were conducted during the time period and the non CWB project construction activities near Electric Centre was considered to be the major source of noise impact. As such, the exceedance was concluded as non-project related.

5.2.2 Limit level exceedances were recorded at RTN2a-Electric Centre during daytime on 31 Jan 2013 and during restricted hours on 5, 11 and 12 Feb 2013. After checking with contractor, on 31 Jan 2013, no noisy construction activities were undertaken during the recorded period. The exceedance was non-continuous and considered to be contributed by the IEC traffic. On 11 and 12 Feb 2013, no construction activities were conducted and the exceedances were considered to be contributed by the Chinese New Year pyrotechnic display and IEC traffic respectively. As such, the exceedances were concluded as non-project related. **Appendix 4.2**

**5.3. Air Monitoring**

5.3.1. No exceedance was recorded in 1-hr TSP and 24-hrs TSP monitoring in the reporting period.

**5.4. Water Quality Monitoring**

5.4.1. The summary of water quality exceedances recorded in reporting period is presented in the **Table 5.1** and **Table 5.1a**.

**Table 5.1 Summary of Water Quality Monitoring Exceedances in Reporting period**

Contract no.	Water Monitoring Station	Mid-flood						Mid-ebb					
		DO		Turbidity		SS		DO		Turbidity		SS	
		AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL
HY/2009/11 Monitoring finished on 6 Feb 2012	WSD9	0	0	0	0	0	0	0	0	0	0	0	0
	WSD10	0	0	0	0	0	0	0	0	0	0	0	0
	WSD15	0	0	0	0	0	0	0	0	0	0	0	0

Contract no.	Water Monitoring Station	Mid-flood						Mid-ebb					
		DO		Turbidity		SS		DO		Turbidity		SS	
		AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL
	WSD17	0	0	0	0	0	0	0	0	0	0	0	0
	C8	0	0	0	0	0	0	0	0	0	0	0	0
	C9	0	0	0	0	0	0	0	0	0	0	0	0
HK/2009/01	WSD19	1	0	1	2	0	2	0	0	2	0	0	2
	C1	0	0	1	1	0	0	0	0	0	0	0	0
	C3	2	0	0	0	1	0	0	0	0	0	0	0
	C4e	0	0	0	1	0	0	0	0	0	0	0	0
	C4w	0	0	1	0	1	0	0	0	0	0	0	0
Monitoring finished on 27 April 2012	WSD20	0	0	0	0	0	0	0	0	0	0	0	0
	WSD7	0	0	0	0	0	0	0	0	0	0	0	0
HK/2009/01 & HK/2010/06	C2	0	0	0	1	1	0	0	0	0	0	0	0
HK/2009/02  Monitoring started on 8 Feb 2012	C5e	0	0	0	0	0	0	0	0	1	1	0	1
	C5w	0	0	1	0	1	0	0	0	1	0	0	0
	WSD21	0	1	0	2	0	2	1	0	0	1	1	1
	WSD9	1	0	0	0	0	0	0	0	0	0	0	0
	WSD17	0	0	0	0	0	0	0	0	0	0	0	0
HY/2009/15	C7	0	0	0	0	0	0	0	0	0	0	0	0
HY/2009/19 Monitoring started on 28 Jan 2012	C8	0	0	1	0	0	0	0	0	2	2	0	0
	C9	0	0	3	1	3	0	0	0	0	0	0	0
<b>Total</b>		4	1	8	8	7	4	1	0	6	4	1	4

- Remarks: - The cessation of seawater intake operation for C6 was confirmed on 17 May 2011, the water monitoring at C6 was then terminated since 17 May 2011.
- WSD9 and WSD17 were implemented with respect to HK/2009/02 from 8 Feb 2012.
  - 4-week water quality monitoring at WSD9, WSD10, WSD15, WSD17, C8 and C9 were completed on 6 Feb 2012.
  - C8 and C9 were implemented with respect to HY/2009/19 from 28 Jan 2012.
  - WSD7 and WSD20 were temporary suspended since 27 April 2012

5.4.2. All exceedances in Table 5.1 have been investigated and there was no project-related exceedance.

**Table 5.1a Summary of Enhanced Dissolved Oxygen Monitoring Exceedances in Reporting period**

Contract no.	Water Monitoring Station	Mid-flood		Mid-ebb	
		DO		DO	
		AL	LL	AL	LL

Contract no.	Water Monitoring Station	Mid-flood		Mid-ebb	
		DO		DO	
		AL	LL	AL	LL
HY/2009/15	C6	0	0	0	0
	C7	2	0	0	0
	Ex-WPCWA SW	1	4	0	2
	Ex-WPCWA SE	6	9	5	1
<b>Total</b>		<b>9</b>	<b>13</b>	<b>5</b>	<b>3</b>

5.4.3. All exceedances in Table 5.1a have been investigated and were considered unlikely to be related to project works. The low DO levels were possible in relation to the low flow and recorded low water depth. In view that no odour nuisance was detected during monitoring, the DO exceedances were considered not related to the Project. These DO exceedances were considered as the natural variation and not related to the Project works.

**5.5. Site Audit**

5.5.1. There was no non-compliance from the site audits in the reporting period. During environmental site inspections conducted during the reporting period, minor deficiencies were noted.

**5.6. Review of the Reasons for and the Implications of Non-compliance**

5.6.1 There was no non-compliance from the site audits in the reporting period.

**5.7. Summary of action taken in the event of and follow-up on non-compliance**

5.7.1 There was no particular action taken since no project-related non-compliance was recorded from the site audits and environmental monitoring in the reporting period.

**6. COMPLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTION**

- 6.0.1. There was no complaint received in this reporting period.
- 6.0.2. The details of cumulative complaint log and summary of complaints are presented in **Appendix 6.1**.
- 6.0.3. No notification of summons or prosecution was received in the reporting period. Cumulative statistic on complaints and successful prosecutions are summarized in **Table 6.1** and **Table 6.2** respectively.

**Table 6.1 Cumulative Statistics on Complaints**

Reporting Period	No. of Complaints
Commencement works (Mar 2010) to last reporting period	27
Decemberr 2012- February 2013	0
<b>Project-to-Date</b>	<b>27</b>

**Table 6.2 Cumulative Statistics on Successful Prosecutions**

Environmental Parameters	Cumulative No. Brought Forward	No. of Successful Prosecutions this quarter (Offence Date)	Cumulative No. Project-to-Date
Air	-	0	0
Noise	-	0	0
Water	-	0	0
Waste	-	0	0
<b>Total</b>	<b>-</b>	<b>0</b>	<b>0</b>

## **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 Monthly EM&A report (January 2013) of Central Reclamation Phase III (CRIII), filling works, road works, landscape works, building construction works and drainage works were performed in the February 2013 reporting month. The water quality monitoring was completed in October 2011 and no project-related exceedance was recorded for air and noise monitoring during the reporting quarter. 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 Wan Chai Development Phase II, Central-Wan Chai Bypass and Island Eastern Corridor Link projects, the major construction activities at Reclamation Shoreline Sub-zones under Wan Chai Development Phase II were the dredging and filling at HKCEC3w, dredging at submarine sewage pipelines, reinstatement of seawall block construction at TCBR1W and marine bored piling at MTR Tunnel Crossing in the reporting month. The major environmental impact was water quality impact at North Point, Causeway Bay and Wan Chai.
- 7.0.4. The major environmental impacts generated from the reclamation work at Central Reclamation Phase III were only located along the coastline of Central and Admiralty. As no project related exceedance was recorded in the Project, it was considered no adverse environmental impact caused by the Project works. Thus, it is evaluated the cumulative construction impact was insignificant.

## 8. CONCLUSION

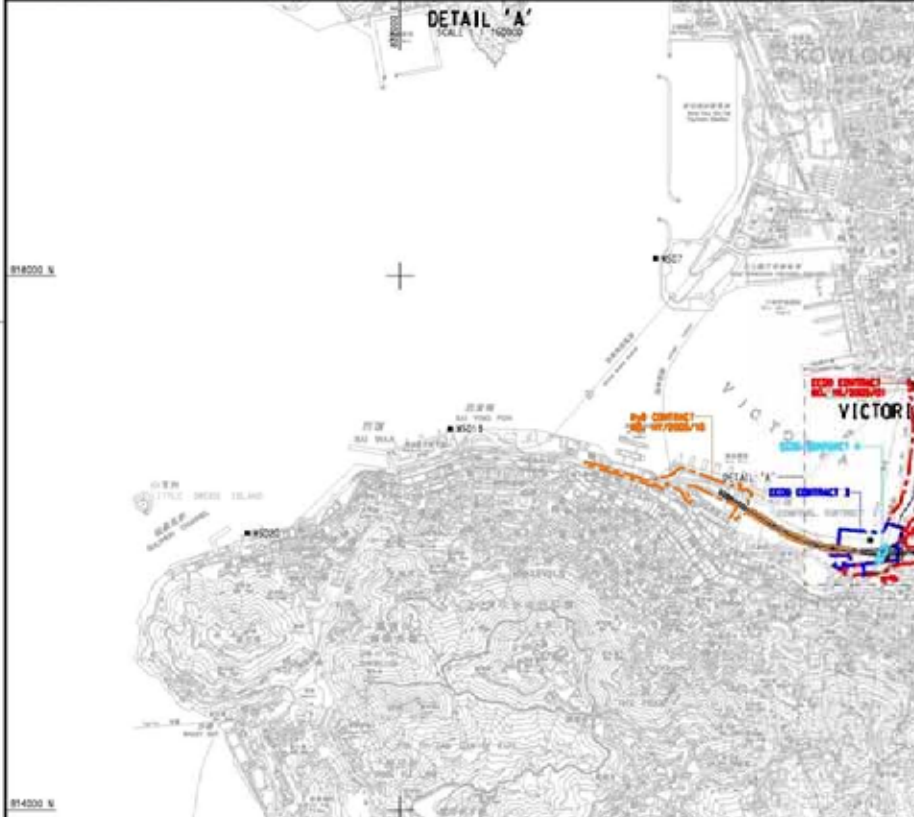
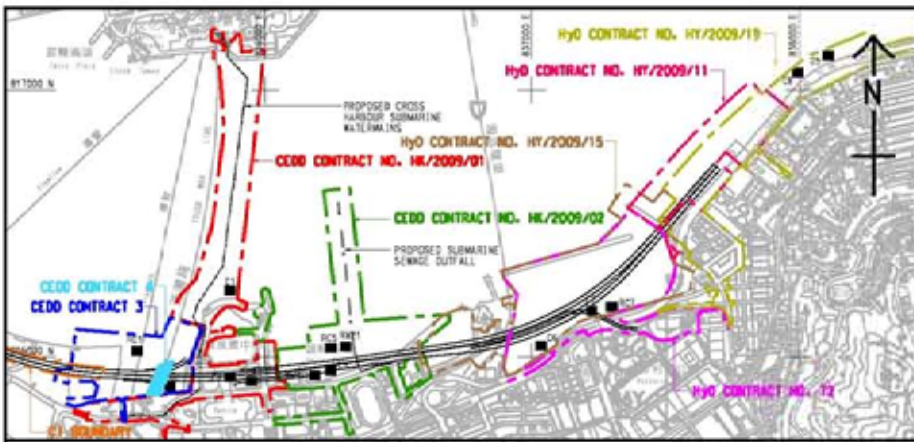
- 8.0.1. The EM&A programme was carried out in accordance with the EM&A Manual requirements, minor alterations to the programme proposed were made in response to changing circumstances.
- 8.0.2. No non-compliance was noted and no prosecution was received during the reporting period.
- 8.0.3. The construction programmes of individual contracts are provided in **Appendix 7.1**.





***Figure 2.1***

***Project Layout***



**LEGEND:**

- WATER QUALITY MONITORING STATIONS
- COOLING WATER INTAKES**
- 01 HONG KONG CONVENTION AND EXHIBITION CENTRE EXTENSION
  - 02 TELECOM HONG KONG ACADEMY FOR PERFORMING ARTS / SUIT ON CENTRE
  - 03 HONG KONG CONVENTION AND EXHIBITION CENTRE PHASE 1
  - 04 WAN CHAI TOWER AND GREAT EXHIBITION CENTRE
  - 05 SUN HANG KAI CENTRE
  - 06 PROPOSED EXHIBITION STATION / WORLD TRADE CENTRE
  - 07 WINDSOR HOUSE
  - 08 CITY GREEN
  - 09 PREVIENT CENTRE
  - 103 PROPOSED HERFA EXTENSION
  - 105 SUN HANG KAI CENTRE (REPROVISION)
  - 107 WINDSOR HOUSE (TEMPORARY REPROVISION)

**MSD SALT WATER INTAKE**

- W521 WAN CHAI
- W401 WAN CHAI (REPROVISION)
- W501 GEMUNION ISLAND
- W525 TAI BAA
- W5210 SHA KAO L'ONG
- W5215 SAI WAN HO
- W5217 SCARRY BAY
- W5219 SHEUNG WAN
- W5220 KENNEDY TOWN

**DESIGNATED PROJECTS (DP)**

DP1	- CENTRAL WAN CHAI BYPASS (CNB) INCLUDING ITS ROAD TUNNEL AND SLIP ROADS
DP2	- ROAD P2 AND OTHER ROADS (PRIMARY / DISTRICT DISTRIBUTOR ROADS)
DP3	- PERMANENT AND TEMPORARY REDUCATION WORKS INCLUDING ASSOCIATED DREDGING WORKS IN WAN CHAI DEVELOPMENT PHASE 1 (WCH1) AREA
DP4	- TEMPORARY-EMBANKMENT-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 - 314/2008  
 DP2 IS COVERED BY EP - 316/2008  
 DP3, DP5 AND DP6 ARE COVERED BY EP - 356/2005

WORKS CONTRACT	DESIGNATED PROJECT INVOLVED	CONSTRUCTION COMMENCEMENT
CEDD CONTRACT NO. HK/2009/01	DP1, DP2, DP6	APRIL 2010
CEDD CONTRACT NO. HK/2009/02	DP1, DP2, DP6	APRIL 2010
CEDD CONTRACT 3	DP1, DP3	END 2011
CEDD CONTRACT 4	DP1, DP3	END 2012
CEDD CONTRACT 5	DP3	2015
HyO CONTRACT NO. HY/2009/11	DP3	18 MARCH 2010
HyO CONTRACT NO. HY/2009/15	DP1, DP3	SEPTEMBER 2010
HyO CONTRACT NO. HY/2009/18	DP1	OCTOBER 2010
HyO CONTRACT NO. HY/2009/19	DP1	NOVEMBER 2010
HyO CONTRACT 12	DP1, DP3	MID 2013



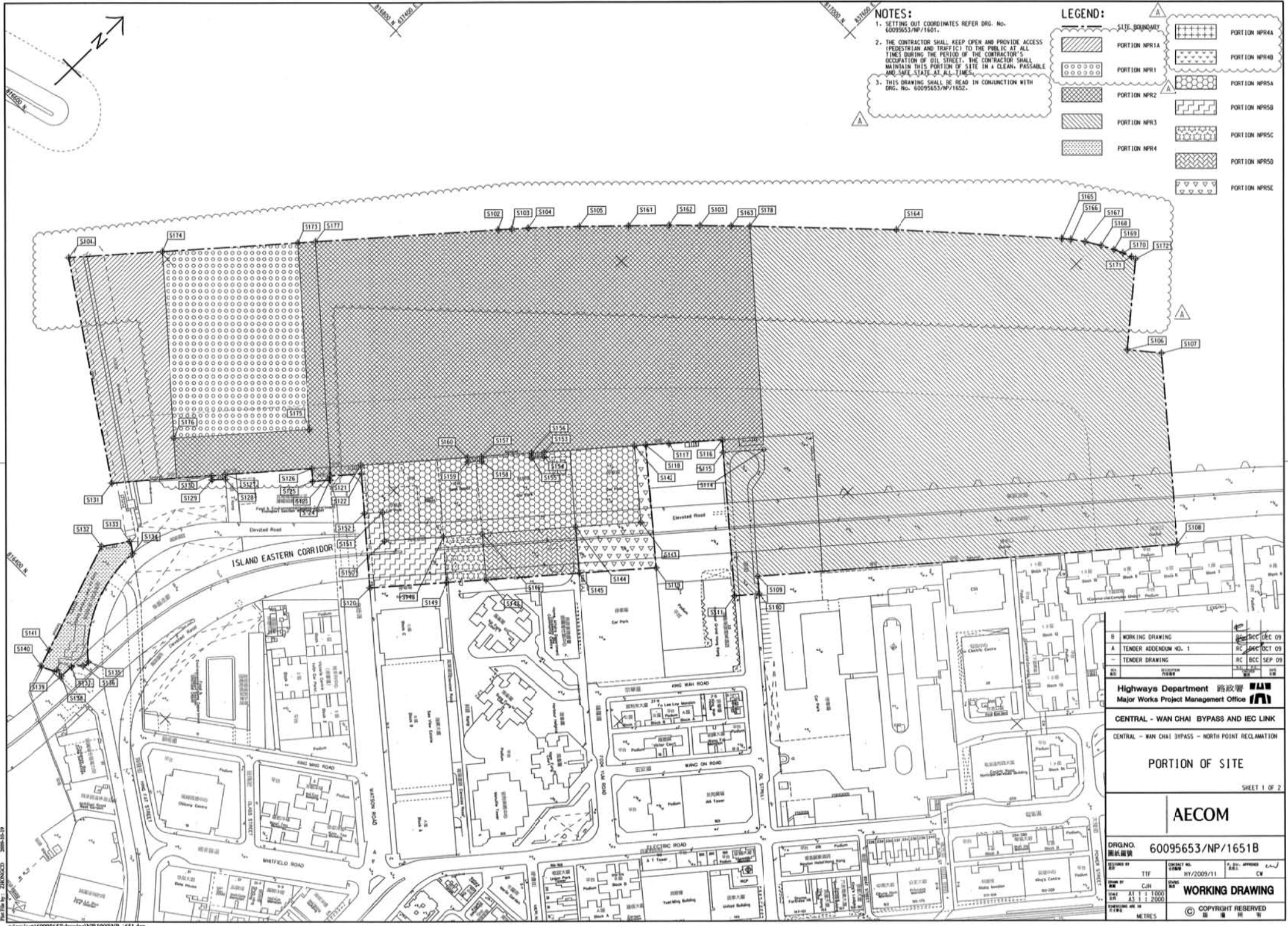
**WAN CHAI DEVELOPMENT PHASE II**  
 WAN CHAI DEVELOPMENT PHASE II, PWD CENTRAL - WAN CHAI BYPASS - CANAL, P2 AND P3 MEASUREMENT AND TESTING WORKS (STAGE 1)

**LOCATIONS OF WATER QUALITY MONITORING STATIONS**



PROJECT NUMBER: **60041297/C5/SK001**

DESIGNED BY: AECOM	CHECKED BY: AECOM	DATE: 1/1/2008
SCALE: 1:10000	UNIT: METRES	COPYRIGHT RESERVED



**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:**

[Dotted pattern]	PORTION NPR1	[Cross-hatch pattern]	PORTION NPR4
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A	TENDER ADDENDUM NO. 1	09 OCT 09
-	TENDER DRAWING	09 SEP 09

Highways Department 路政署  
 Major Works Project Management Office

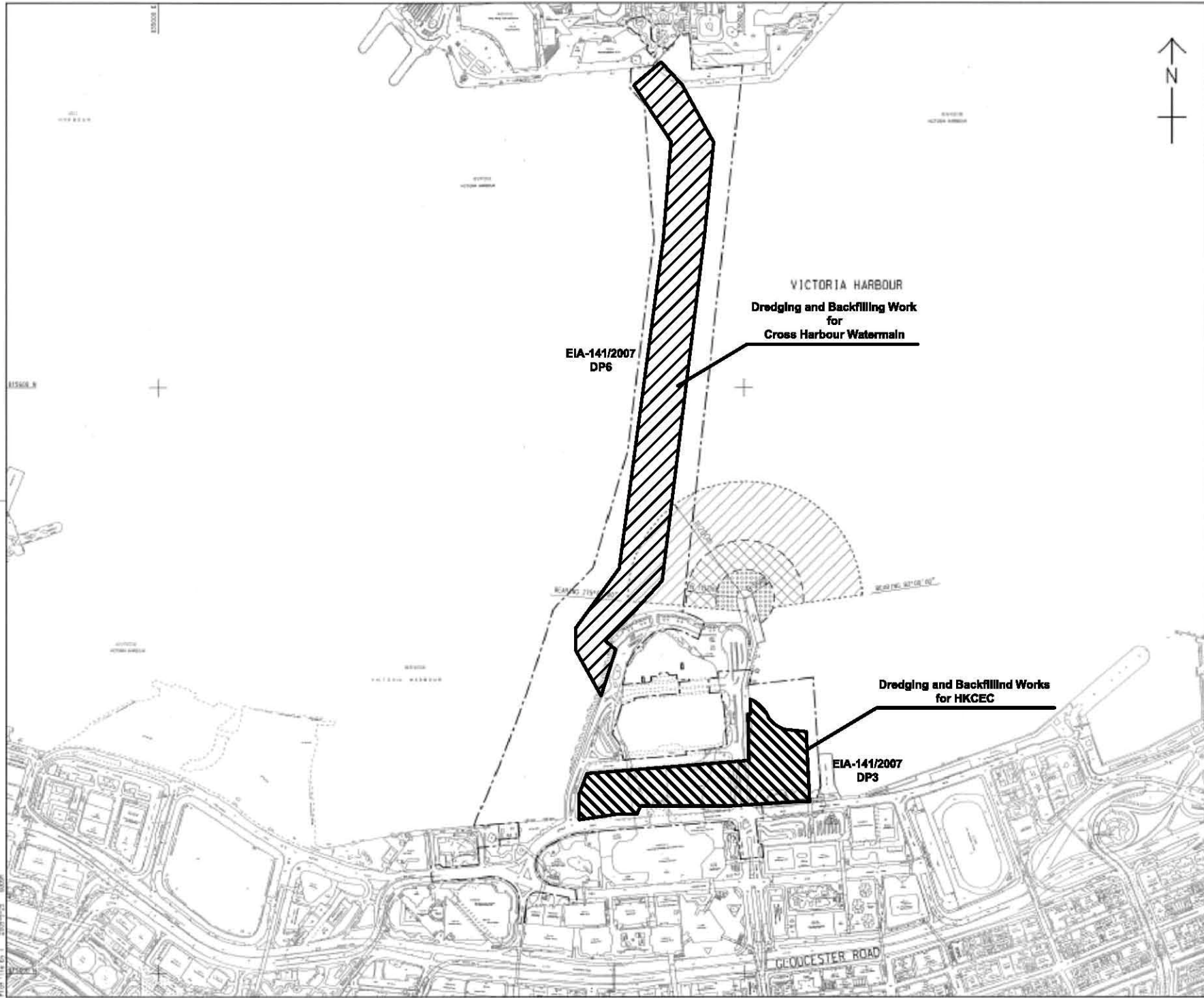
CENTRAL - WAN CHAI BYPASS AND IEC LINK  
 CENTRAL - WAN CHAI BYPASS - NORTH POINT RECLAMATION

PORTION OF SITE  
 SHEET 1 OF 2

**AECOM**

DRGNO.	60095653/NP/1651B
DESIGNED BY	TTF
CHECKED BY	CJH
DATE	11/2/2009
SCALE	AS SHOWN
UNIT	METRES

WORKING DRAWING  
 COPYRIGHT RESERVED



LOCATION PLAN  
SCALE 1 : 5000

- NOTES:**
1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE NOTED.
  2. THE RESTRICTION ZONE IS THIS DRAWING WILL COME INTO EFFECT AFTER THE OPERATION OF THE GOVERNMENT HULLING AT EDP/D/D/E LAST.

**LEGEND:**

	CONTRACT BOUNDARY
	WORKING RESTRICTION ZONE
	NAVIGATION AND WORKING RESTRICTION ZONE
	WORKING BARGE, NAVIGATION AND WORKING RESTRICTION ZONE

TENDER ADDENDUM NO. 4	DATE: 21/11/09
TENDER ADDENDUM NO. 1	DATE: 21/11/09
TENDER DRAWING	DATE: 21/11/09

CEDD 土木工程發展署  
Civil Engineering and Development Department

WAN CHAI DEVELOPMENT PHASE II

WAN CHAI DEVELOPMENT PHASE II -  
CONCRETE - P&I (P&I) (S&I) (S&I)  
KONG KONG CONVENTION AND EXHIBITION CENTRE  
**RESTRICTED ZONE FOR  
CONSTRUCTION VESSELS**  
(Contract no: HK/2009/01)

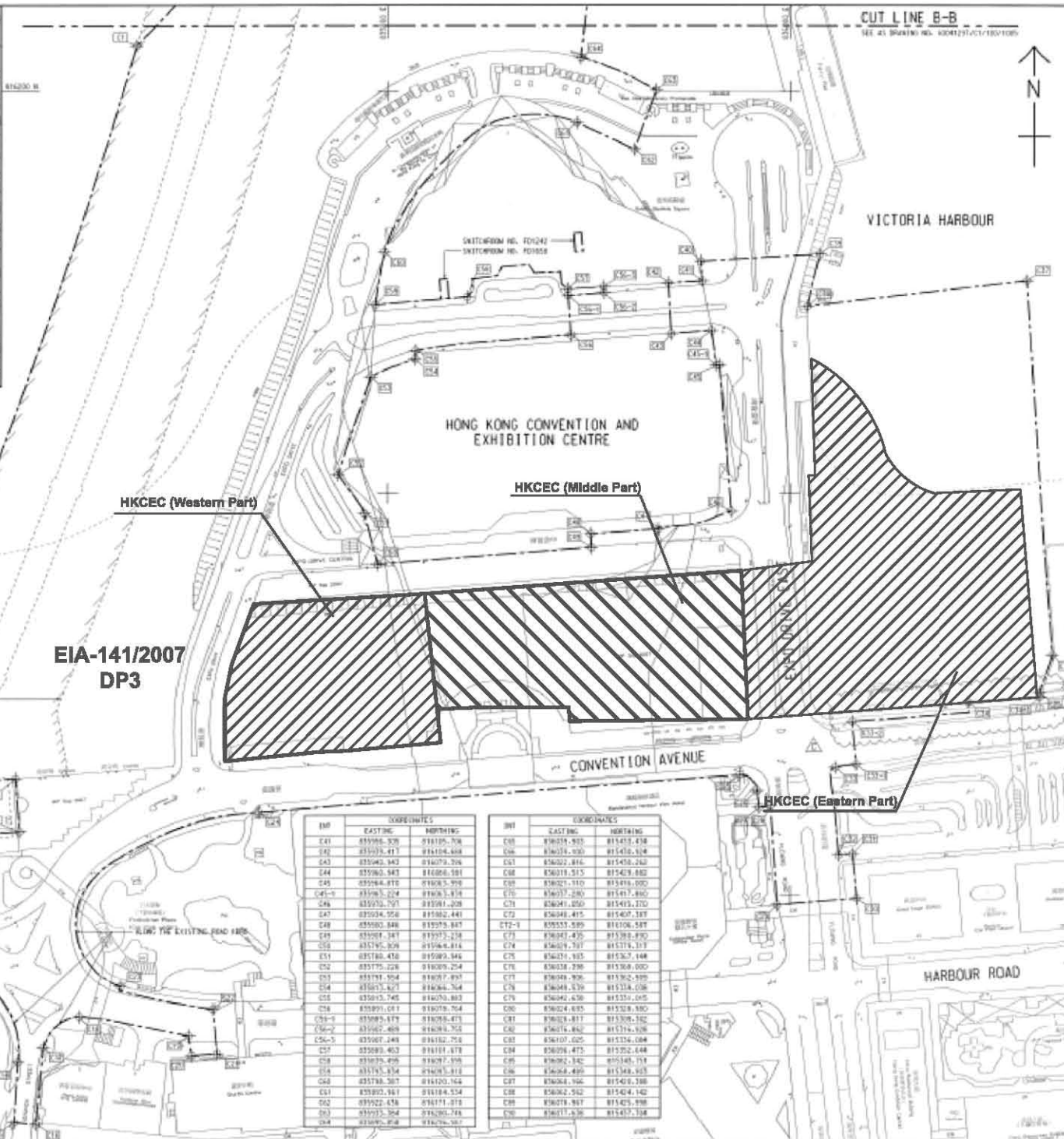
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DRGNO. 60041297/C1/100/10108	DATE: 16/2/2009/01
SCALE: AS 1:8000	COPYRIGHT RESERVED



**INSET 'A'**  
SCALE 1 : 1000

CENTRAL DISTRICT



**EIA-141/2007  
DP3**

IMP	COORDINATES	
	EASTING	NORTHING
C41	85996.528	818105.708
C42	85979.417	818104.468
C43	85983.943	818079.206
C44	85980.543	818086.581
C45	85994.818	818083.258
C46	85995.504	818083.514
C46	85995.527	818081.208
C47	85994.956	818082.441
C48	85980.846	818079.887
C49	85987.347	818073.258
C50	85979.209	818066.814
C51	85988.478	818080.846
C52	85979.226	818089.254
C53	85979.504	818077.897
C54	85985.827	818084.764
C55	85983.745	818079.883
C56	85989.071	818076.764
C56-1	85989.879	818076.871
C56-2	85982.488	818076.765
C56-3	85987.248	818182.756
C57	85989.463	818181.878
C58	85979.496	818077.198
C58	85979.504	818078.818
C59	85979.507	818120.164
C60	85989.861	818184.534
C62	85982.434	818171.812
C63	85985.504	818280.718
C64	85985.818	818276.507

IMP	COORDINATES	
	EASTING	NORTHING
C65	85989.903	818419.438
C66	85984.000	818419.614
C67	85982.816	818419.260
C68	85989.515	818419.882
C69	85982.110	818419.000
C70	85987.289	818417.880
C71	85991.850	818419.270
C72	85994.415	818407.319
C72-1	85955.589	818106.587
C73	85984.435	818385.890
C74	85989.797	818374.317
C75	85984.185	818383.148
C76	85988.298	818368.000
C77	85989.706	818362.890
C78	85984.439	818334.038
C79	85984.638	818331.015
C80	85984.635	818328.880
C81	85982.417	818309.182
C82	85985.882	818376.148
C83	85987.025	818356.084
C84	85986.473	818352.444
C85	85982.142	818348.751
C86	85984.499	818348.925
C87	85984.196	818348.388
C88	85982.512	818348.142
C89	85989.861	818425.898
C90	85987.638	818437.194

**KEY PLAN**  
SCALE 1 : 5000

**NOTE:**  
1. FOR NOTES & LEGEND, REFER TO DRAWING NO. 60041297/C1/100/1006.

IMP	COORDINATES	
	EASTING	NORTHING
C1	859879.285	818222.559
C2	85979.277	818282.299
C3	85944.565	818284.425
C4	85941.020	818281.894
C5	85982.482	818295.522
C6	85983.584	818288.612
C7	85986.585	818285.197
C8	85986.199	818287.147
C9	85986.433	818282.247
C10	85983.082	818287.060
C11	85985.389	818288.875
C12	85987.486	818288.107
C13	85985.468	818284.817
C14	85986.433	818287.122
C15	85984.289	818288.593
C16	85985.195	818285.525
C17	85989.191	818284.441
C18	85986.685	818288.816
C19	85983.421	818280.587
C20	85982.537	818282.881
C21	859819.289	818287.484
C22	85987.183	818284.445
C23	85987.086	818289.074
C24	85979.984	818283.670
C25	85985.288	818288.261
C26	85983.687	818282.286
C27	85984.605	818283.836
C28	85986.218	818284.445
C29	85981.525	818289.385
C30	85983.781	818289.687
C31	85983.216	818288.470
C32	85984.182	818282.117
C33	85982.081	818284.482
C34	85982.299	818284.709
C35	85982.429	818283.066
C36	85986.187	818284.280
C37	85984.632	818289.089
C38	85984.547	818283.095
C39	85986.850	818289.194
C40	85989.199	818289.897
C41	85989.810	818287.289
C42	85984.906	818289.086
C43	85985.682	818285.582

C	TENDER ADDENDUM NO.4	2009/10/28	SEP 09
B	TENDER ADDENDUM NO.2	2009/10/28	SEP 09
A	TENDER ADDENDUM NO.1	2009/10/28	SEP 09
-	TENDER DRAWING	2009/10/28	SEP 09

**EDD** 土木工程師協會  
Civil Engineering and Development Department

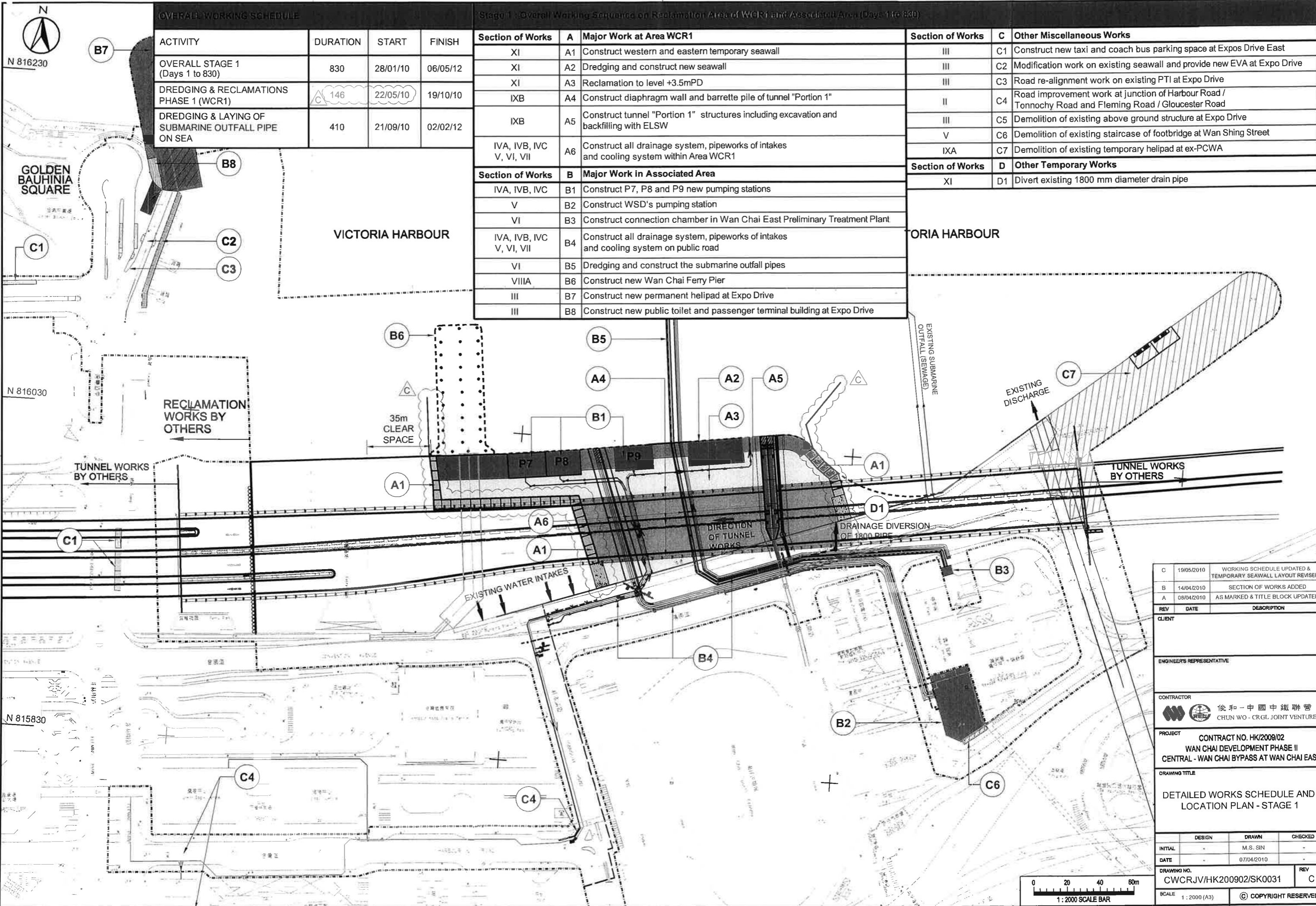
**WAN CHAI DEVELOPMENT PHASE II**

PHASE II DEVELOPMENT PHASE II -  
CONSTRUCTION AND OPERATIONS  
HONG KONG CONVENTION AND EXHIBITION CENTRE  
**SITE BOUNDARY  
SETTING OUT PLAN**  
(Contract no. HK/2009/01)

**AECOM**

DRGNO. 60041297/C1/100/1006C

SCALE	AS 1 : 2000
DATE	10/2009
PROJECT	HK/2009/01
CLIENT	EDD
DESIGNER	PMC



**OVERALL WORKING SCHEDULE**

ACTIVITY	DURATION	START	FINISH
OVERALL STAGE 1 (Days 1 to 830)	830	28/01/10	06/05/12
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

**Stage 1: Overall Working Sequence on Reclamation Area of WCR1 and Associated Area (Days 1 to 830)**

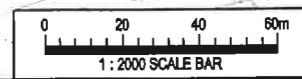
Section of Works	A	Major Work at Area WCR1	Section of Works	C	Other Miscellaneous Works
XI	A1	Construct western and eastern temporary seawall	III	C1	Construct new taxi and coach bus parking space at Expos Drive East
XI	A2	Dredging and construct new seawall	III	C2	Modification work on existing seawall and provide new EVA at Expo Drive
XI	A3	Reclamation to level +3.5mPD	III	C3	Road re-alignment work on existing PTI at Expo Drive
IXB	A4	Construct diaphragm wall and barrette pile of tunnel "Portion 1"	II	C4	Road improvement work at junction of Harbour Road / Tonnochy Road and Fleming Road / Gloucester Road
IXB	A5	Construct tunnel "Portion 1" structures including excavation and backfilling with ELSW	III	C5	Demolition of existing above ground structure at Expo Drive
IVA, IVB, IVC, V, VI, VII	A6	Construct all drainage system, pipeworks of intakes and cooling system within Area WCR1	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	B	Major Work in Associated Area	Section of Works	D	Other Temporary Works
IVA, IVB, IVC	B1	Construct P7, P8 and P9 new pumping stations	XI	D1	Divert existing 1800 mm diameter drain pipe
V	B2	Construct WSD's pumping station			
VI	B3	Construct connection chamber in Wan Chai East Preliminary Treatment Plant			
IVA, 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 toilet and passenger terminal building at Expo Drive			

REV	DATE	DESCRIPTION
C	19/05/2010	WORKING SCHEDULE UPDATED & TEMPORARY SEAWALL LAYOUT REVISED
B	14/04/2010	SECTION OF WORKS ADDED
A	08/04/2010	AS MARKED & TITLE BLOCK UPDATED

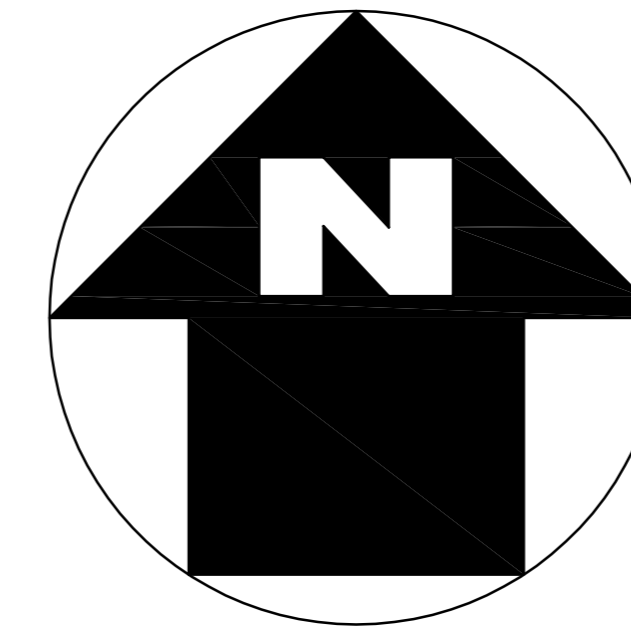
CLIENT	
ENGINEER'S REPRESENTATIVE	
CONTRACTOR	俊和-中國中鐵聯營 CHUN WO - CRGL JOINT VENTURE
PROJECT	CONTRACT NO. HK/2009/02 WAN CHAI DEVELOPMENT PHASE II CENTRAL - WAN CHAI BYPASS AT WAN CHAI EAST

DRAWING TITLE	DETAILED WORKS SCHEDULE AND LOCATION PLAN - STAGE 1
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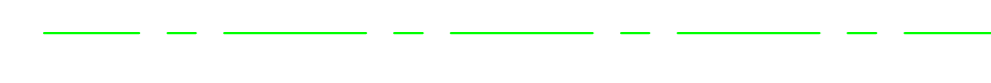
DESIGN	DRAWN	CHECKED
INITIAL	M.S. SIN	
DATE	07/04/2010	
DRAWING NO.	CWCRJV/HK200902/SK0031	REV C
SCALE	1:2000 (A3)	© COPYRIGHT RESERVED



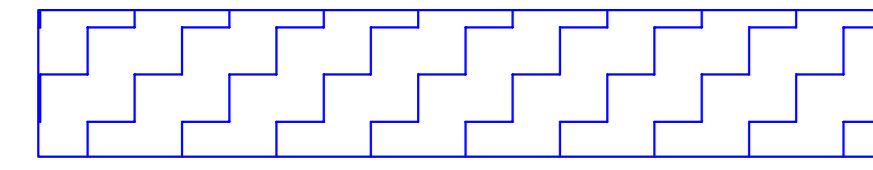
港口  
HARBOUR



LEGEND:



WORKS AREA



DREDGING AREA FOR  
MITIGATION OF ODOUR(DP3)



SITE BOUNDARY

TCBR1E

TCBR2  
AND  
TCBR3

TCBR4

TCBR1W

TPCWAW

TPCWAE

DP3

銅鑼灣避風塘

CAUSEWAY BAY TYPHOON SHELTER

吉列島

KELLETT ISLAND

貨物裝卸灣

Cargo Handling Basin

中國建築工程(香港)有限公司  
CHINA STATE CONSTRUCTION ENGR. (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

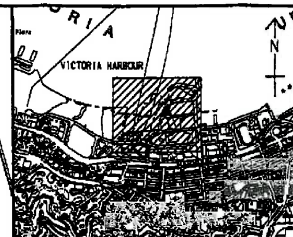
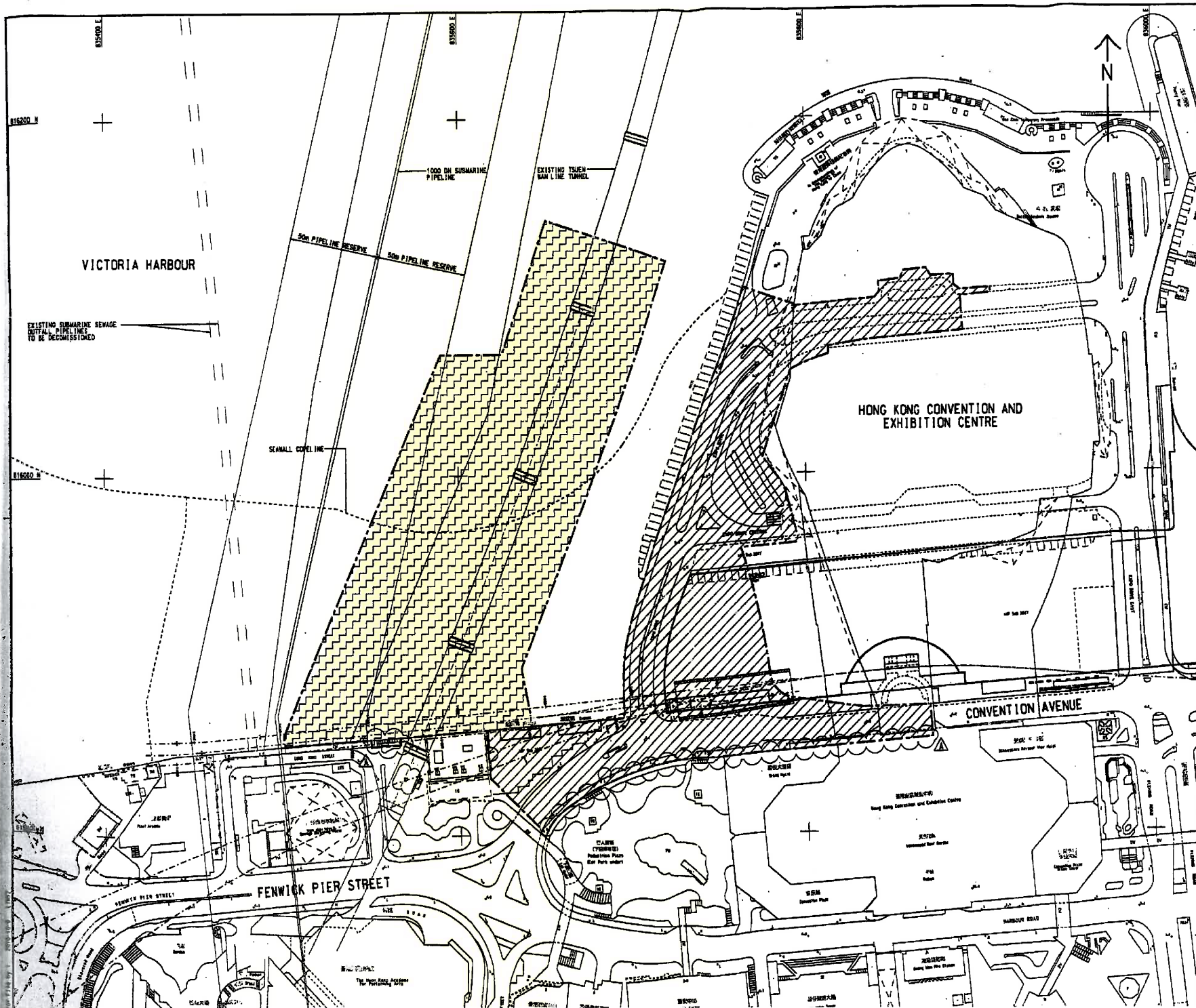
DRG. NO.  
CWBT/EPD/001B

SCALE  
1:1000 @ A0

STATUS  
DIMENSIONS ARE IN  
MILLIMETERS

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Victoria Park



KEY PLAN  
SCALE 1 : 20000

- NOTES:**
- COORDINATES ARE BASED ON HONG KONG METRIC GRID (1980) UNLESS OTHERWISE NOTED.
  - LEVELS ARE IN METRES RELATIVE TO HONG KONG PRINCIPAL DATUM (1985) UNLESS OTHERWISE NOTED.
  - DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
  - SETTING OUT DIMENSIONS, LEVELS, COORDINATES ARE TO BE CALCULATED BY THE CONTRACTOR. NO INFORMATION SHOULD BE SCALED PHYSICALLY OR ELECTRICALLY FROM THE DRAWINGS OR FILES.
  - SITE BOUNDARY SETTING OUT POINTS SHALL REFER TO DRAWING NO. 60041297/C4/100/1201.

- LEGEND:**
- SITE BOUNDARY
  - PORTION 1
  - PORTION 2 (DELAY POSSESSION)

TENDER ADDENDUM NO.1	SHW JYL OCT 10
TENDER DRAWING	SHW JYL SEP 10


**土木工務發展局**  
 Civil Engineering and Development Department  
**WAN CHAI DEVELOPMENT PHASE II**  
 WAN CHAI DEVELOPMENT PHASE II - CENTRAL-WAN CHAI BYPASS OVER MTR TSUEN WAN LINE  
**PORTIONS OF THE SITE (Contract HK/2010/06)**

**AECOM**

DRAWING NO. 60041297/C4/100/1301A	
DESIGNED BY SHW	CHECKED BY TRH
DATE 16/2010/06	DATE 16/2010/06
SCALE A1 1:11000	
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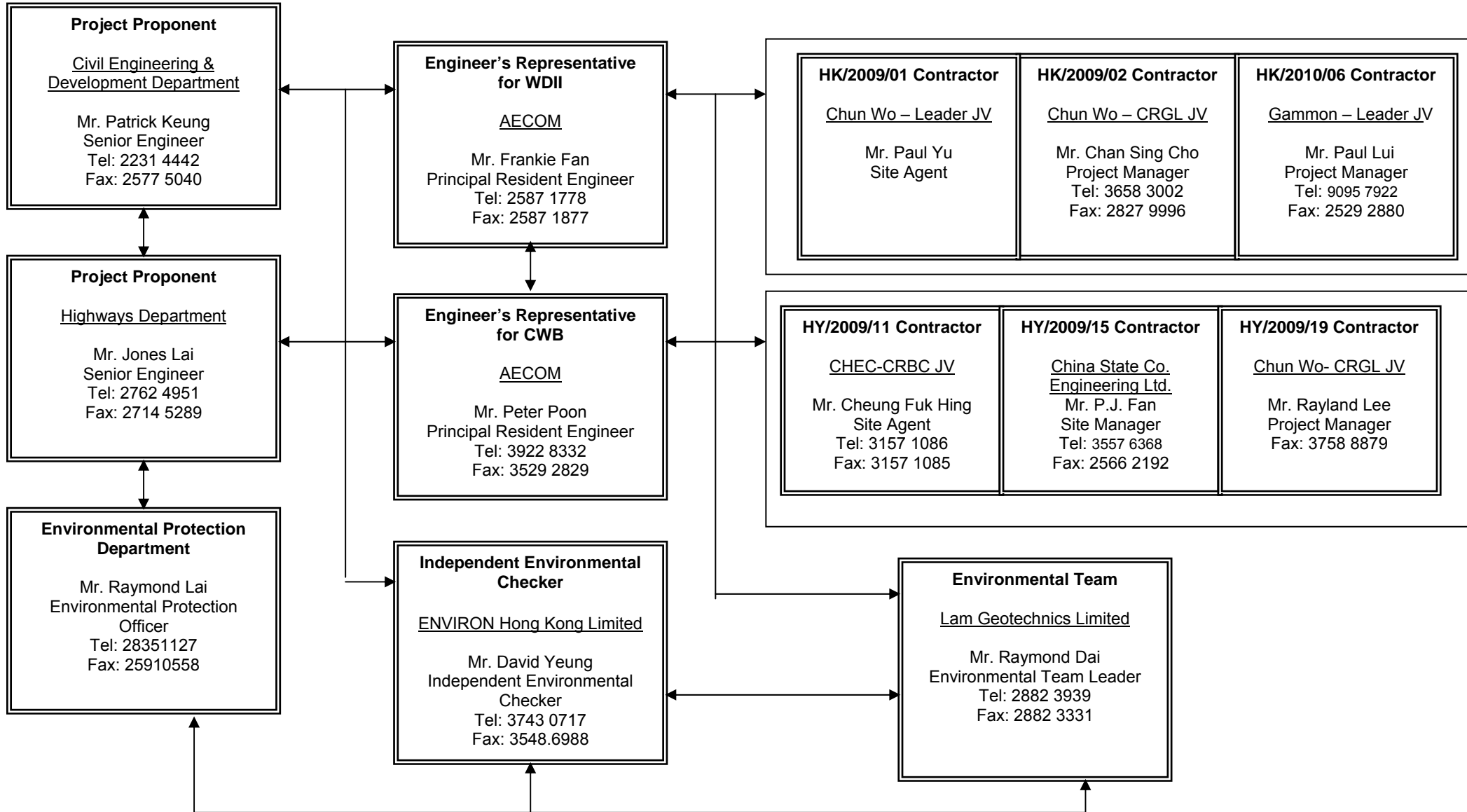


***Figure 2.2***

***Project Organization Chart***



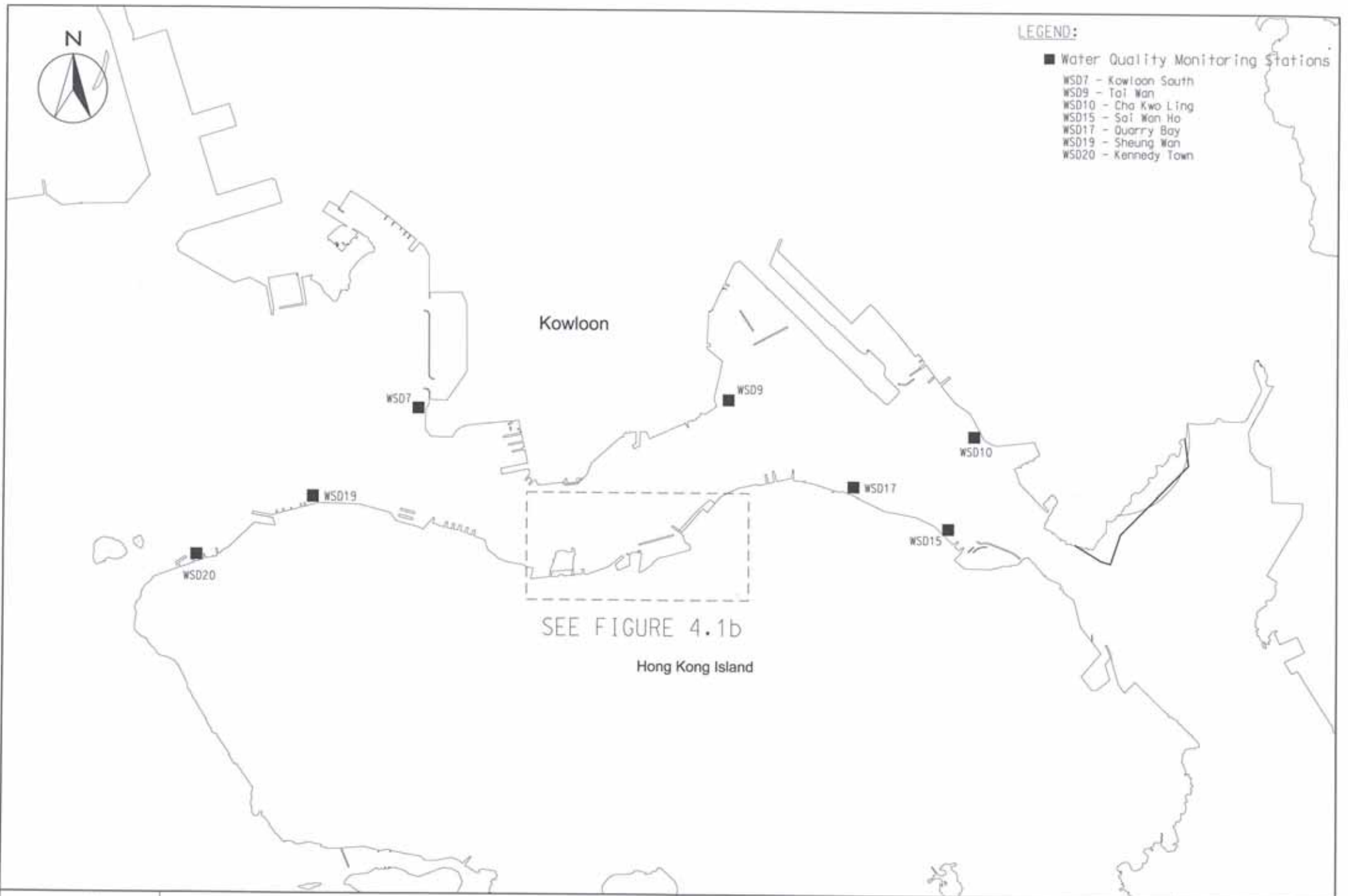
**Project Organization Chart**





***Figure 3.1***

***Locations of Monitoring Stations***

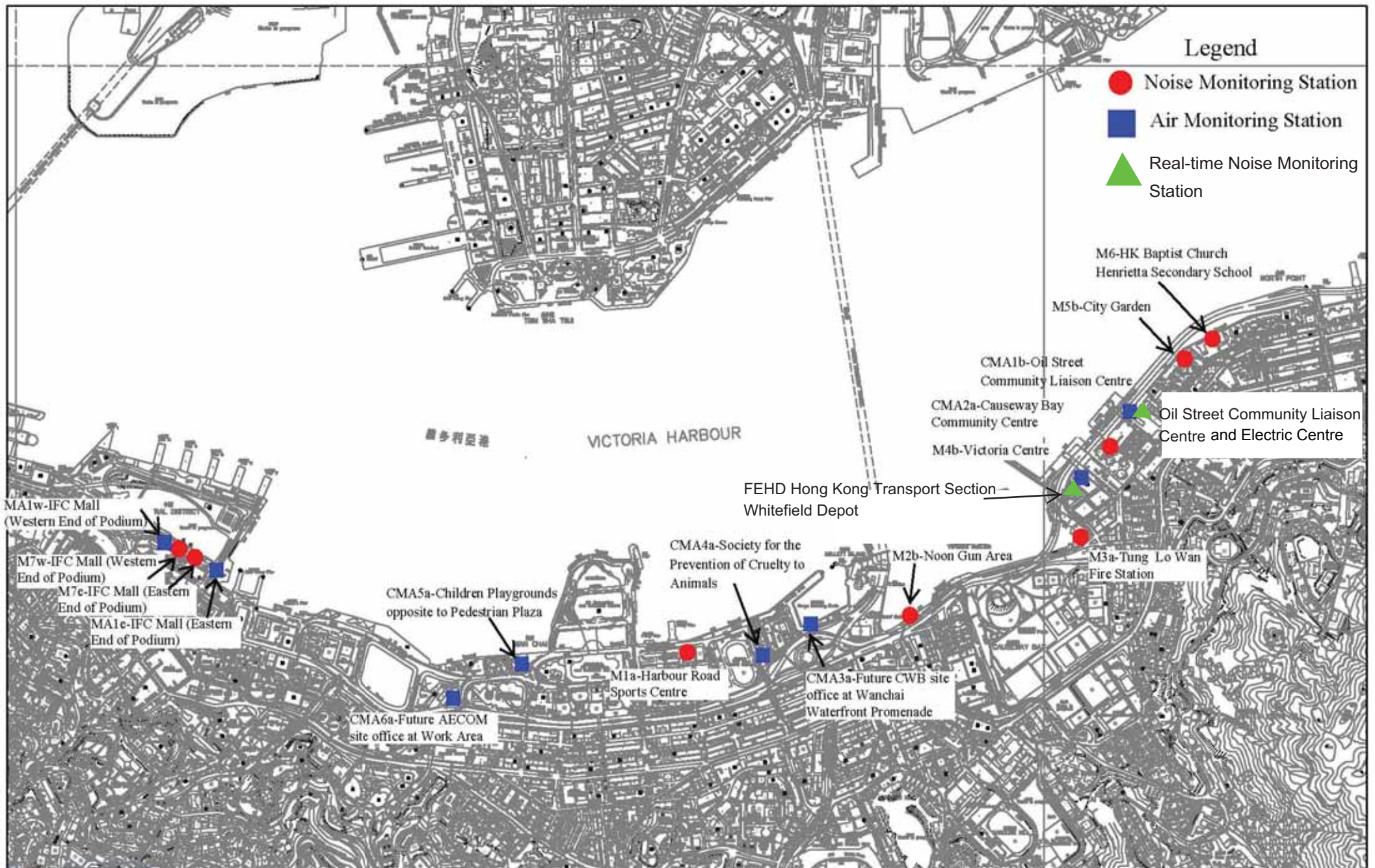


**LEGEND:**

**WATER QUALITY MONITORING STATIONS**

- C1 HONG KONG CONVENTION AND EXHIBITION CENTRE EXTENSION
- C2 TELECOM HOUSE/HK ACADEMY FOR PERFORMING/ 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)
- WSD21 WAN CHAI
- RW1 WAN CHAI (REPROVISION)

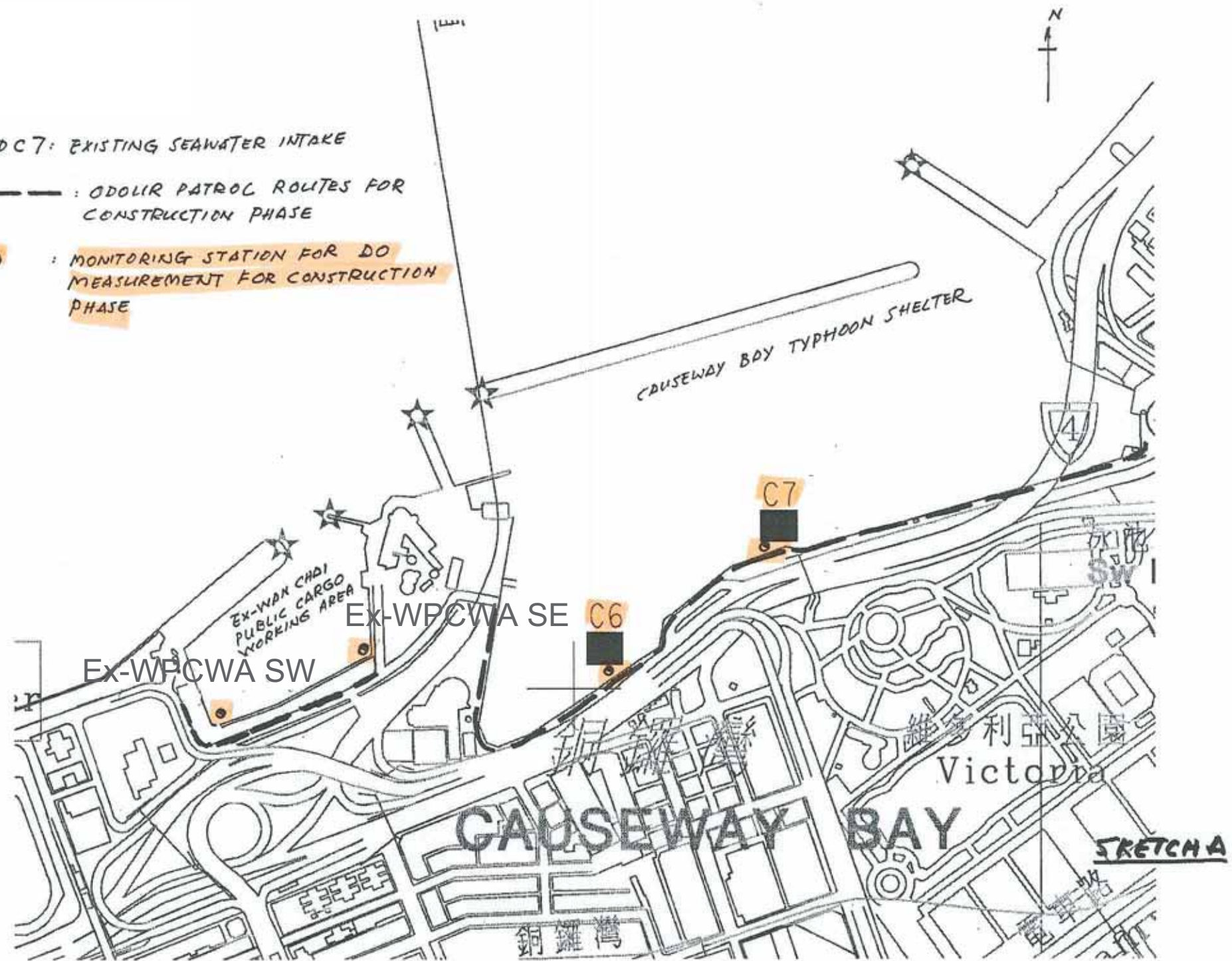





C6 AND C7: EXISTING SEAWATER INTAKE

----- : ODOR PATROL ROUTES FOR CONSTRUCTION PHASE


● : MONITORING STATION FOR DO MEASUREMENT FOR CONSTRUCTION PHASE

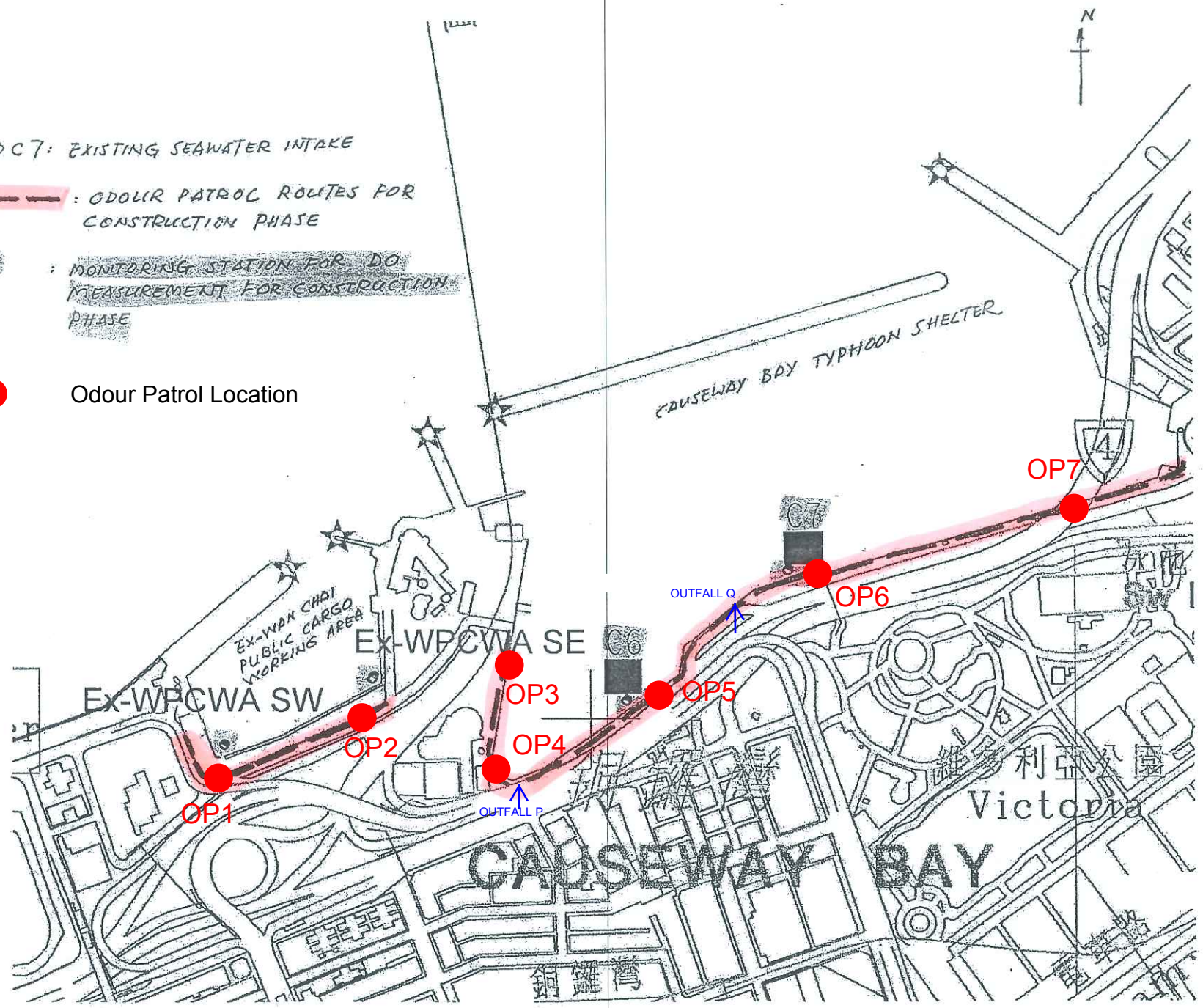


C6 AND C7: EXISTING SEAWATER INTAKE

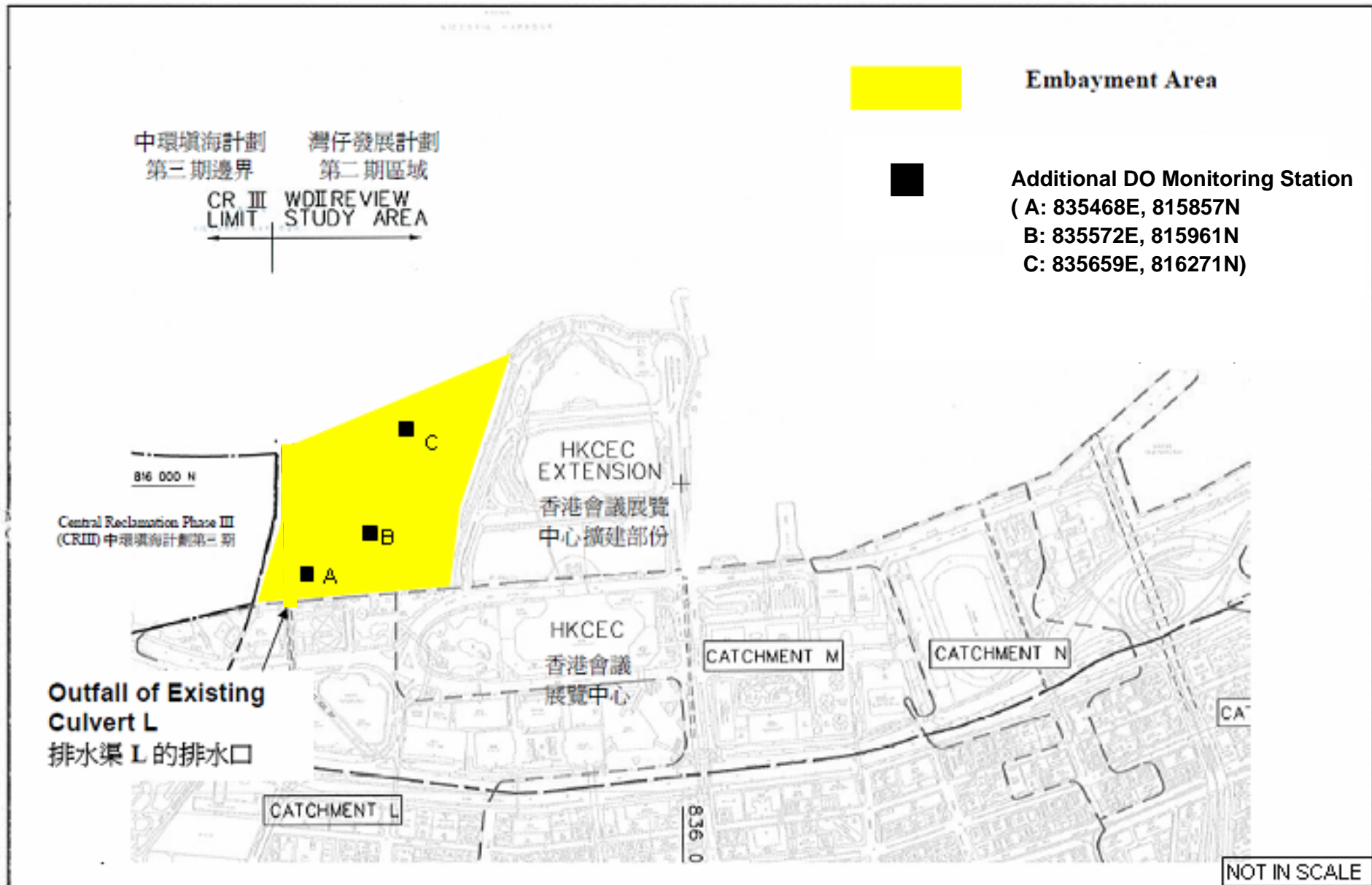
 : ODOR PATROL ROUTES FOR CONSTRUCTION PHASE

 : MONITORING STATION FOR DO MEASUREMENT FOR CONSTRUCTION PHASE

 Odour Patrol Location







Location Plan of Additional Dissolved Oxygen Monitoring Stations for Culvert L Water Discharge Flow



***Appendix 2.1***

***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	
<b>Construction Phase</b>								
<i>For the Whole Project</i>								
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. <ul style="list-style-type: none"> <li>Strictly limit the truck speed on site to below 10 km per hour and water spraying to keep the haul roads in wet condition;</li> <li>Watering during excavation and material handling;</li> <li>Provision of vehicle wheel and body washing facilities at the exit points of the site, combined with cleaning of public roads where necessary; and</li> <li>Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.</li> </ul>	Work site / during construction	Contractor		√			

Appendix 2.1

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 <sup>1</sup>		√			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 <sup>2</sup>		√			EIAO-TM
<b>Operation Phase</b>								
<i>For the Whole Project</i>								

<sup>1</sup> CEDD will identify an implementation agent.

<sup>2</sup> CEDD will identify an implementation agent.

Appendix 2.1

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 <sup>1</sup>			√		EIAO-TM
<b>For DPI – CWB (Within the Project Boundary)</b>								
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

Appendix 2.1

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	
<b>Construction Phase</b>								
<b>For the Whole Project</b>								

Appendix 2.1

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S4.9.4	<p>Good Site Practice:</p> <ul style="list-style-type: none"> <li>Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program.</li> <li>Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program.</li> <li>Mobile plant, if any, shall be sited as far away from NSRs as possible.</li> <li>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.</li> <li>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.</li> <li>Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities.</li> </ul>	Work Sites / During Construction	Contractor		√			EIAO-TM, NCO
<i>For DP1 – CWB (Within the Project Boundary)</i>								

Appendix 2.1

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	<p>Use of quiet powered mechanical equipment, movable noise barrier and temporary noise barrier for the following tasks:</p> <ul style="list-style-type: none"> <li>Slip road 8 tunnel</li> <li>Construction of diaphragm wall and substructures of the tunnel approach ramp</li> <li>Excavation</li> <li>Construction of slabs</li> <li>Backfill</li> <li>Demolition and construction of substructures for the IEC</li> <li>Demolition works of existing piers and crossheads of the marine section of the existing IEC</li> </ul> <p>Use of PME grouping for the following tasks:</p> <ul style="list-style-type: none"> <li>At-grade road construction</li> <li>Substructure for IECL connection</li> </ul>	Work Sites / During Construction	Contractor		√			EIAO-TM, NCO
<i>For DP2 – WDII Major Roads (Road P2)</i>								
S4.8.3 – S4.8.4	<p>Use of quiet powered mechanical equipment, movable noise barrier and temporary noise barrier for the following tasks:</p> <ul style="list-style-type: none"> <li>Temporary road diversion</li> <li>Resurfacing</li> <li>At-grade roadwork</li> </ul>	Work Sites / During Construction	Contractor		√			EIAO-TM, NCO
<i>For DP3 – Reclamation Works</i>								
S4.8.3 – S4.8.4	<p>Use of quiet powered mechanical equipment for the following task:</p> <ul style="list-style-type: none"> <li>Filling behind seawall</li> <li>Seawall construction</li> </ul>	Work Sites / During Construction	Contractor		√			EIAO-TM, NCO

Appendix 2.1

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
<i>For DP5 – Wan Chai East Sewage Outfall</i>								
S4.8.3 – S4.8.4	Use of quiet powered mechanical equipment for the following tasks: <ul style="list-style-type: none"> <li>Submarine pipelines (marine section)</li> </ul> Use of quiet powered mechanical equipment and movable noise barrier for the following tasks: <ul style="list-style-type: none"> <li>Installation of a new pipeline (land section)</li> </ul>	Work Sites / During Construction	Contractor		√			EIAO-TM, NCO
<i>For DP6 – Cross-Harbour Water Mains from Wan Chai to Tsim Sha Tsui</i>								
S4.8.3 – S4.8.4	Use of quiet powered mechanical equipment for the following tasks: <ul style="list-style-type: none"> <li>Submarine pipelines (marine section)</li> </ul>	Work Sites / During Construction	Contractor		√			EIAO-TM, NCO

Appendix 2.1

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

Appendix 2.1



**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	
<b>Construction Phase</b>								
<i>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)</i>								
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: <ul style="list-style-type: none"> <li>Seawall construction in all the reclamation areas;</li> <li>Construction of the CWB Tunnel</li> <li>Construction of the proposed WSD water mains; and</li> <li>Construction of the proposed Wan Chai East sewage outfall pipelines.</li> </ul>	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: <ul style="list-style-type: none"> <li>Dredging along the proposed cross-harbour water mains;</li> <li>Dredging along the seawall in the Wan Chai Reclamation (WCR) zone (area between HKCEC Extension and PCWA).</li> </ul>	Work site / During the construction period	Contractor		√			EIAO-TM, WPCO

Appendix 2.1

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 CR111 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																								
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Reclamation Area</th> <th colspan="2">Maximum Dredging Rate</th> <th rowspan="2">Maximum Dredging Rate (m<sup>3</sup> per week)</th> </tr> <tr> <th>m<sup>3</sup> per day</th> <th>m<sup>3</sup> per hour (for 16 hrs per day)</th> </tr> </thead> <tbody> <tr> <td colspan="4"><b>Dredging along seawall or breakwater</b></td> </tr> <tr> <td>North Point Shoreline Zone (NPR)</td> <td>6,000</td> <td>375</td> <td>42,000</td> </tr> <tr> <td>Causeway Bay</td> <td>1,500</td> <td>94</td> <td>10,500</td> </tr> <tr> <td>Shoreline Zone</td> <td>6,000</td> <td>375</td> <td>42,000</td> </tr> <tr> <td>PCWA Zone</td> <td>5,000</td> <td>313</td> <td>35,000</td> </tr> </tbody> </table>		Reclamation Area	Maximum Dredging Rate		Maximum Dredging Rate (m <sup>3</sup> per week)	m <sup>3</sup> per day	m <sup>3</sup> per hour (for 16 hrs per day)	<b>Dredging along seawall or breakwater</b>				North Point Shoreline Zone (NPR)	6,000	375	42,000	Causeway Bay	1,500	94	10,500	Shoreline Zone	6,000	375	42,000	PCWA Zone	5,000	313	35,000					
Reclamation Area	Maximum Dredging Rate		Maximum Dredging Rate (m <sup>3</sup> per week)																													
	m <sup>3</sup> per day	m <sup>3</sup> per hour (for 16 hrs per day)																														
<b>Dredging along seawall or breakwater</b>																																
North Point Shoreline Zone (NPR)	6,000	375	42,000																													
Causeway Bay	1,500	94	10,500																													
Shoreline Zone	6,000	375	42,000																													
PCWA Zone	5,000	313	35,000																													

Appendix 2.1



EIA Ref	Environmental Protection Measures / Mitigation Measures				Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines																			
							Des	C	O	Dec																				
	<table border="1"> <tr> <td>Wan Chai Shoreline Zone (WCR)</td> <td>6,000</td> <td>375</td> <td>42,000</td> </tr> <tr> <td>HKCEC Shoreline Zone (HKCEC)</td> <td colspan="2">HKCEC Stage 1 &amp; 3</td> <td>10,500</td> </tr> <tr> <td></td> <td colspan="2">HKCEC Stage 2</td> <td>42,000</td> </tr> <tr> <td>Cross Harbour Water Mains</td> <td>1,500</td> <td>94</td> <td>10,500</td> </tr> <tr> <td>Wan Chai East Submarine Sewage Pipeline</td> <td>1,500</td> <td>94</td> <td>10,500</td> </tr> </table> <p>Note: 1,500 m<sup>3</sup> per day shall be applied for construction of the western seawall of WCR1.</p>				Wan Chai Shoreline Zone (WCR)	6,000	375	42,000	HKCEC Shoreline Zone (HKCEC)	HKCEC Stage 1 & 3		10,500		HKCEC Stage 2		42,000	Cross Harbour Water Mains	1,500	94	10,500	Wan Chai East Submarine Sewage Pipeline	1,500	94	10,500						
Wan Chai Shoreline Zone (WCR)	6,000	375	42,000																											
HKCEC Shoreline Zone (HKCEC)	HKCEC Stage 1 & 3		10,500																											
	HKCEC Stage 2		42,000																											
Cross Harbour Water Mains	1,500	94	10,500																											
Wan Chai East Submarine Sewage Pipeline	1,500	94	10,500																											
S5.8, Figure 5.3	Dredging along the seawall at WCR1 shall be undertaken initially at 1,500m <sup>3</sup> 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	<p>Silt screens shall be applied to seawater intakes at interim construction stages as stated below:</p> <table border="1"> <thead> <tr> <th>Interim Construction Stage</th> <th>Location of Applications</th> </tr> </thead> <tbody> <tr> <td>Scenario 2A in early 2009 with concurrent dredging activities at HKCEC, WCR, TPCWA,</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</td> </tr> </tbody> </table>				Interim Construction Stage	Location of Applications	Scenario 2A in early 2009 with concurrent dredging activities at HKCEC, WCR, TPCWA,	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	Work site / During the construction period	Contractor		√			EIAO-TM, WPCO															
Interim Construction Stage	Location of Applications																													
Scenario 2A in early 2009 with concurrent dredging activities at HKCEC, WCR, TPCWA,	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																													

Appendix 2.1

EIA Ref	Environmental Protection Measures / Mitigation Measures		Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines					
					Des	C	O	Dec						
	<table border="1"> <tr> <td>TBW, NP and Water Mains Zone</td> <td>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 Re-provisioned WSD Wan Chai saltwater intake. Cooling water intakes for MTR South, Excelsior Hotel &amp; World Trade Centre and re-provisioned Windsor House.</td> </tr> </table>		TBW, NP and Water Mains Zone	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	Scenario 2B in late 2009/2010 with concurrent dredging activities at Sewage Pipelines Zone and TCBR.	WSD saltwater intakes at Sheung Wan, Wan Chai Cooling water intakes for Queensway Government Offices, Excelsior Hotel, World Trade Centre and Windsor House.	Scenario 2C in 2011 with concurrent dredging activities at HKCEC and TCBR.	WSD saltwater intakes at Sheung Wan and Re-provisioned WSD Wan Chai saltwater intake. Cooling water intakes for MTR South, Excelsior Hotel & World Trade Centre and re-provisioned Windsor House.						
TBW, NP and Water Mains Zone	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													
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Scenario 2C in 2011 with concurrent dredging activities at HKCEC and TCBR.	WSD saltwater intakes at Sheung Wan and Re-provisioned WSD Wan Chai saltwater intake. Cooling water intakes for MTR South, Excelsior Hotel & World Trade Centre and re-provisioned Windsor House.													
S5.8	<p>Other mitigation measures include:</p> <ul style="list-style-type: none"> <li>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;</li> <li>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;</li> <li>all hopper barges and dredgers shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material;</li> <li>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;</li> <li>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</li> </ul>		Work site / During the construction period	Contractor		√			ProPECC PN 1/94; WPCO (TM-DSS)					

Appendix 2.1

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<ul style="list-style-type: none"> <li>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.</li> </ul>							
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

Appendix 2.1

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 <sup>3</sup>		√			WPCO

Appendix 2.1

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	
				Des	C	O	Dec		
<b>For the Whole Project</b>									
S5.8	<ul style="list-style-type: none"> <li>Construction Runoff and Drainage</li> <li>use of sediment traps, wheel washing facilities for vehicles leaving the site, and adequate maintenance of drainage systems to prevent flooding and overflow;</li> <li>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;</li> <li>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;</li> <li>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;</li> <li>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;</li> <li>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;</li> <li>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</li> </ul>	<ul style="list-style-type: none"> <li>Work site / During the construction period</li> </ul>	Contractor		√				ProPECC PN 1/94; WPCO (TM-DSS)

<sup>3</sup> 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	
	<p>required.</p> <ul style="list-style-type: none"> <li>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.</li> </ul>							
	<ul style="list-style-type: none"> <li>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.</li> </ul>							
S5.8	<p><i>Sewage from Construction Work Force</i></p> <p>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.</p>	Work site / During the construction period	Contractor		√			ProPECC PN 1/94; WPCO (TM-DSS)
S5.8	<p><i>Floating Debris and Refuse</i></p> <p>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.</p>	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	<p><i>Storm Water Discharges</i></p> <p>Minimum distances of 100 m shall be maintained between the existing or planned stormwater discharges and the existing or planned WSD flushing water intakes.</p>	Work site and adjacent water / During the design and construction period.	Contractor	√	√			WPCO
<b>Operation Phase</b>								
<b>DPI – CWB (within the Project Boundary)</b>								
S5.8	<p>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:</p> <ul style="list-style-type: none"> <li>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.</li> <li>Petrol interceptors shall be regularly cleaned and maintained in good working condition.</li> <li>Oily contents of the petrol interceptors shall be properly handled and disposed of, in compliance with the requirements of the Waste Disposal Ordinance.</li> <li>Sewage arising from ancillary facilities of CWB (for examples, car park,</li> </ul>	CWB/During design and operational period	HyD/TD <sup>3</sup>	√		√		WPCO

Appendix 2.1

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<p>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.</p> <ul style="list-style-type: none"> <li>Road drainage shall also be provided with adequately designed silt trap to minimize discharge of silty runoff.</li> <li>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.</li> </ul>							

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

<sup>3</sup> if employ Management, Operation and Maintenance (MOM) Contract

Appendix 2.1

**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	
<b>Construction Phase</b>								
<i>For DP3 – Reclamation Works</i>								
S6.7.2	<b>Marine Sediments</b> 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 <sup>3</sup> . 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.							

Appendix 2.1

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: <ul style="list-style-type: none"> <li>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.</li> </ul>							

Appendix 2.1

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>							
S6.6.12	<p><b>Floating Refuse</b></p> <p>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.</p>	Work site / During the construction period	Contractor		√			
<i>For the Whole Project</i>								

Appendix 2.1

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S6.7.7	<p><b>Good Site Practices</b></p> <p>Recommendations for good site practices during the construction activities include:</p> <ul style="list-style-type: none"> <li>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;</li> <li>training of site personnel in proper waste management and chemical waste handling procedures;</li> <li>provision of sufficient waste disposal points and regular collection for disposal;</li> <li>appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;</li> <li>regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and</li> <li>a recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).</li> </ul>	Work site / During the construction period	Contractor		√			Waste Disposal Ordinance (Cap.354)

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EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S6.7.8	<p><i>Waste Reduction Measures</i></p> <p>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:</p> <ul style="list-style-type: none"> <li>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;</li> <li>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;</li> <li>any unused chemicals or those with remaining functional capacity shall be recycled;</li> <li>use of reusable non-timber formwork, such as in casting the tunnel box sections, to reduce the amount of C&amp;D material.</li> <li>prior to disposal of C&amp;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;</li> <li>proper storage and site practices to minimise the potential for damage or contamination of construction materials; and</li> <li>plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.</li> </ul>	Work site / During planning and design stage, and construction stage	Contractor	√	√			

Appendix 2.1

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S6.7.10	<p><i>General Refuse</i></p> <p>General refuse shall be stored in enclosed bins or compaction units separate from C&amp;D material. A licensed waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&amp;D material.</p> <p>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.</p>	Work site / During the construction period	Contractor		√			Public Health and Municipal Services Ordinance (Cap. 132)
S6.7.11	<p><i>Chemical Wastes</i></p> <p>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.</p>	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	<p><i>Construction and Demolition Material</i></p> <p>C&amp;D material shall be sorted on-site into inert C&amp;D material (that is, public fill) and C&amp;D waste. All the suitable inert C&amp;D material shall be broken down to 250 mm in size for reuse as public fill in the WDI reclamation. C&amp;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.</p>	Work site / During the construction period	Contractor		√			ETWB TCW No. 33/2002, 31/2004, 19/2005

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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	<i>Bentonite Slurry</i> 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: <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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.</li> </ul>	Work site / During the construction period	Contractor		√			ProPECC PN 1/94

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

Appendix 2.1

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	
<b>Construction Phase</b>								
<i>For the Whole Project</i>								
S.12.6	<ul style="list-style-type: none"> <li>The contaminated site shall be cleaned up before commencement of site clearance and construction work at the concerned area which may disturb the ground.</li> </ul>	A King Marine / Before commencement of construction activities at A King Marine.	Project proponent for the re-provisioned Tin Hau Temple	√				<p>"Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boatyards, and Car Repair/Dismantling Workshops" published by EPD, HKSAR</p> <p>EPD ProPECC Note No. 3/94</p>
S7.10	<p>During soil remediation works, the Contractor for the excavation works shall take note of the following points for excavation:</p> <ul style="list-style-type: none"> <li>Excavation profiles must be properly designed and executed;</li> <li>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;</li> <li>Quantities of soil to be excavated must be estimated;</li> <li>It maybe necessary to split quantities of soil according to soil type, degree and nature of contamination.</li> <li>Temporary storage of soil at intermediate depot or on-site</li> </ul>	A King Marine / During soil remediation works	Contractor	√				<p>Air Pollution Control Ordinance</p> <p>Noise Control Ordinance</p> <p>Waste Disposal Ordinance</p> <p>Waste Disposal (Chemical Waste) (General) Regulation</p>

Appendix 2.1



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.							
	<ul style="list-style-type: none"> <li>Supply of suitable clean backfill materials is needed after excavation.</li> <li>Care must be taken of existing buildings and utilities.</li> <li>Precautions must be taken to control of ground settlement</li> <li>Speed controls for vehicles shall be imposed on dusty site areas.</li> <li>Vehicle wheel and body washing facilities at the site's exit points shall be established and used.</li> </ul> <p>The following environmental mitigation measures shall be strictly followed during the operation and/or maintenance of the CS/S facilities:</p>							Water Pollution Control Ordinance

Appendix 2.1

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<p><u>Air Quality Mitigation Measures</u></p> <ul style="list-style-type: none"> <li>The loading, unloading, handling, transfer or storage of cement shall be carried out in an enclosed system.</li> <li>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.</li> <li>All practicable measures, including speed controls for vehicles, shall be taken to prevent or minimize the dust emission caused by vehicle movement.</li> <li>Tarpaulin or low permeable sheet shall be put on dusty vehicle loads transported between site locations.</li> </ul>							
	<p><u>Noise Mitigation Measures</u></p> <ul style="list-style-type: none"> <li>The mixing facilities shall be sited as far as practicable to the nearby noise sensitive receivers.</li> <li>Simultaneous operation of mixing facilities and other equipment shall be avoided.</li> <li>Mixing process and other associated material handling activities shall be properly scheduled to minimise potential cumulative noise impact on the nearby noise sensitive receivers.</li> <li>Construction Noise Permit shall be applied for the operation of powered mechanical equipment during restricted hours (if any).</li> </ul>							

Appendix 2.1

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<p><u>Water Quality Mitigation Measures</u></p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p><u>Waste Mitigation Measures</u></p> <ul style="list-style-type: none"> <li>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.</li> <li>Stabilized soils shall be broken into suitable size for backfilling or reuse on site.</li> <li>A high standard of housekeeping shall be maintained within the mixing plant area.</li> <li>If necessary, there shall be clear and separated areas for stockpiling of untreated and treated materials.</li> </ul>							

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

Appendix 2.1

**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	
<b>Construction Phase</b>								
<i>For the Whole Project - Schedule 3 DP</i>								
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.
<i>For DP3 - Reclamation Works</i>								
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.

Appendix 2.1

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	<p>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:</p> <ul style="list-style-type: none"> <li>• Installation of silt curtains during dredging activities</li> <li>• Use of tightly-closed grab dredger</li> <li>• Reduction of dredging rate</li> <li>• Control of grab descending speed</li> <li>• Construction of leading edges of seawall in the early stages of the reclamation works</li> </ul>	Work site / during construction phase	Contractor		√			EIAO TM Annex 16 (Section 8.4) & EIAO Guidance Note No. 3/2002.
	<ul style="list-style-type: none"> <li>• Adoption of multiple-phase construction schedule</li> </ul>							

Appendix 2.1

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	<p>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:</p> <ul style="list-style-type: none"> <li>• Use of Quiet Mechanical Plant during the construction phase shall be adopted wherever possible.</li> <li>• Adoption of multiple-phase construction schedule.</li> <li>• General measures to reduce noise generated during the construction phase (see noise impact assessment) shall be effectively implemented.</li> </ul>	Work site / during construction phase	Contractor		√			EIAO TM Annex 16 (Section 8.4) & EIAO Guidance Note No. 3/2002.
S.9.7.7	<p>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.</p>	Work site / during construction phase	Contractor		√			EIAO TM Annex 16 (Section 8.4) & EIAO Guidance Note No. 3/2002.
S.9.7.8	<p>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.</p>	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

Appendix 2.1

**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	
<b>Construction Phase</b>								
<i>For the Whole Project</i>								
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
<i>For DP1 – CWB (Within the Project Boundary)</i>								
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

Appendix 2.1

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
<i>For DP2 – WDII Major Roads (Road P2)</i>								
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
<i>For DP3 – Reclamation Works</i>								
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
<i>For DP5 – Wan Chai East Sewage Outfall</i>								
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

Appendix 2.1

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
<b>For DP6 – Cross-Harbour Water Mains from Wan Chai to Tsim Sha Tsui</b>								
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
<b>Operation Phase</b>								
<b>For the Whole Project - Schedule 3 DP</b>								
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

Appendix 2.1

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 <sup>4</sup>	√	√	√		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
<b>For DP1 – CWB (Within the Project Boundary)</b>								
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
<b>For DP2 – WDII Major Roads (Road P2)</b>								

<sup>4</sup> CEDD will identify an implementation agent

Appendix 2.1

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
<b>For DP3 – Reclamation Works</b>								
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 <sup>5</sup>	√	√	√		ETWB TCW 2/2004

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

<sup>5</sup> CEDD will identify an implementation agent



***Appendix 3.1***

***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) <sup>Note 1</sup>

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 Monitoring*

Monitoring Location	1-hour TSP Level in $\mu\text{g}/\text{m}^3$		24-hour TSP Level in $\mu\text{g}/\text{m}^3$	
	Action Level	Limit Level	Action Level	Limit Level
CMA1b <sup>Note 2</sup>	320.1	500	176.7	260
CMA2a	323.4	500	169.5	260
CMA3a <sup>Note 2</sup>	311.3	500	171.0	260
CMA4a	312.5	500	171.2	260
CMA5a <sup>Note 2</sup>	332.0	500	181.0	260
CMA6a <sup>Note 2</sup>	300.1	500	187.3	260

Note 2:

- As per facing owner's rejection in allowing the implementation of long-term air quality impact monitoring at their premises, alternative monitoring stations and justification were proposed for IEC verification and EPD approval.
- The established Action and Limit Levels from the baseline air monitoring will be adopted to the alternative monitoring stations.

*Action and Limit Level for Water Monitoring*

Parameters	Dry Season		Wet Season	
	Action	Limit	Action	Limit
<b>WSD Salt Water Intake</b>				
SS in $\text{mg L}^{-1}$	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
<b>Cooling Water Intake</b>				
SS in $\text{mg L}^{-1}$	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 Levels for Odour Patrol*

Parameters	Action	Limit
Odour Nuisance (from odour intensity analysis or odour patrol)	<ul style="list-style-type: none"> <li>• When two documented complaint are received; or</li> <li>• Odour Intensity of 2 is measured from odour intensity analysis.</li> </ul>	<ul style="list-style-type: none"> <li>• Five or more consecutive genuine documented complaints within a week; or</li> <li>• Odour Intensity of 3 or above is measured from odour intensity analysis.</li> </ul>



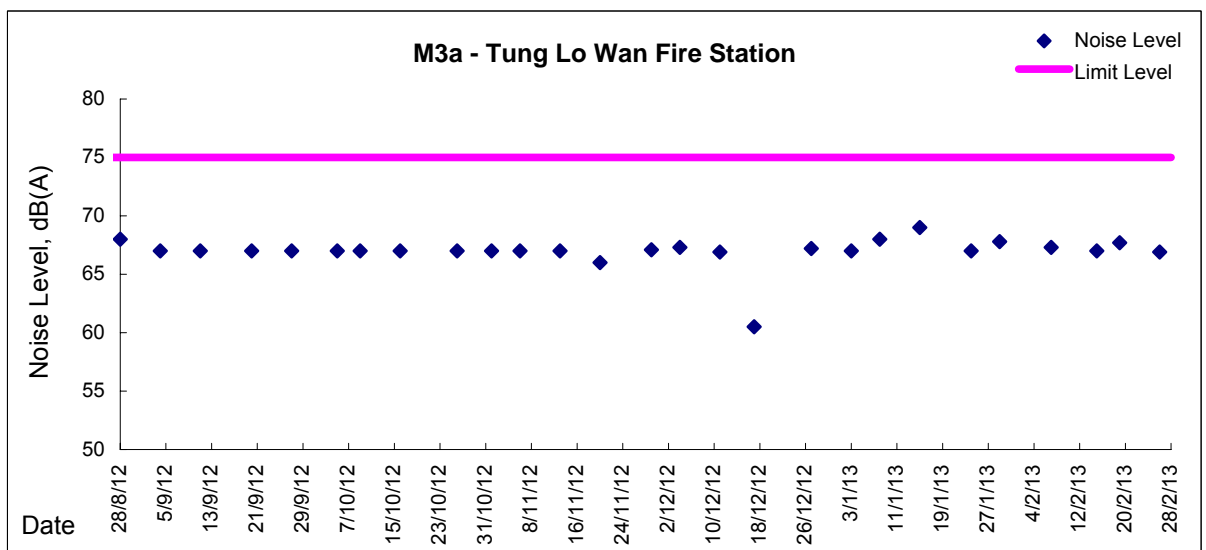
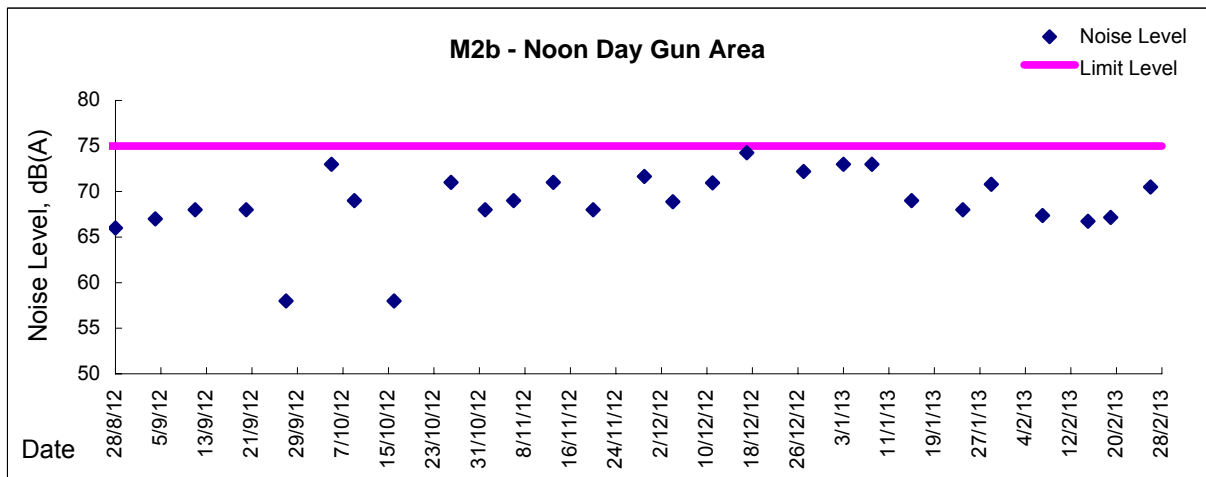
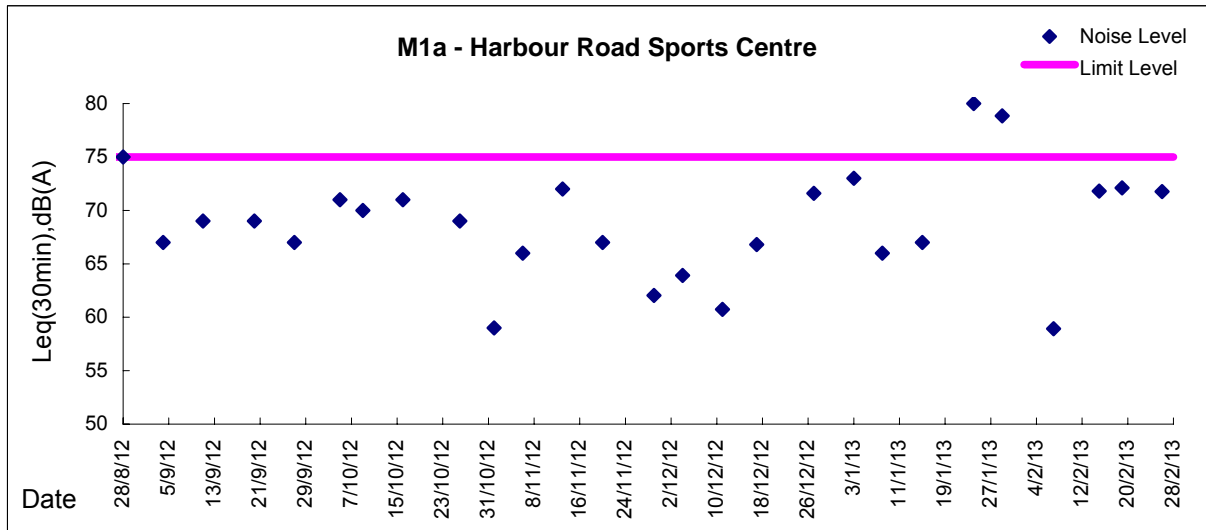


***Appendix 4.1***

***Noise Monitoring Graphical Presentations***

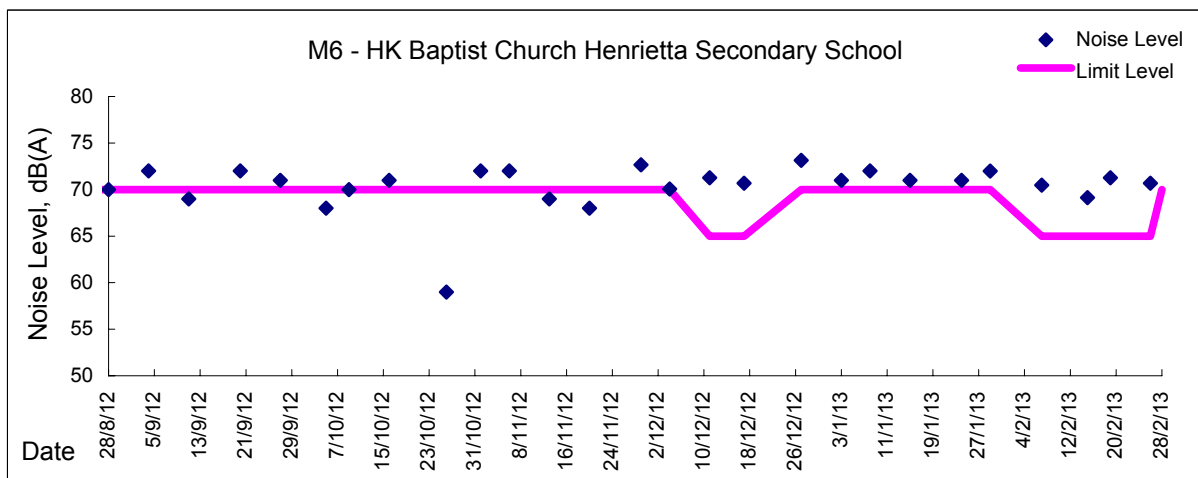
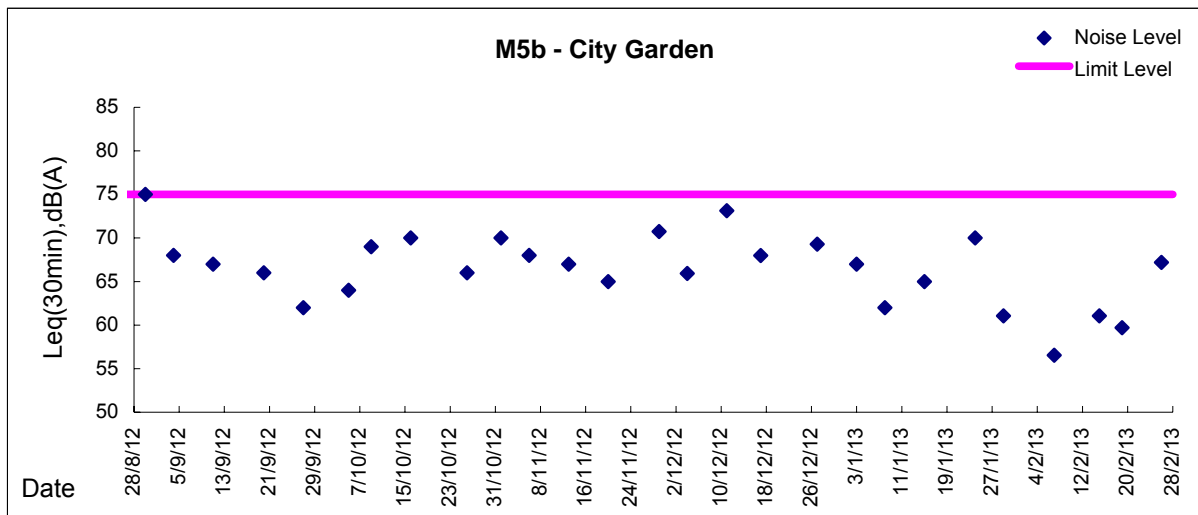
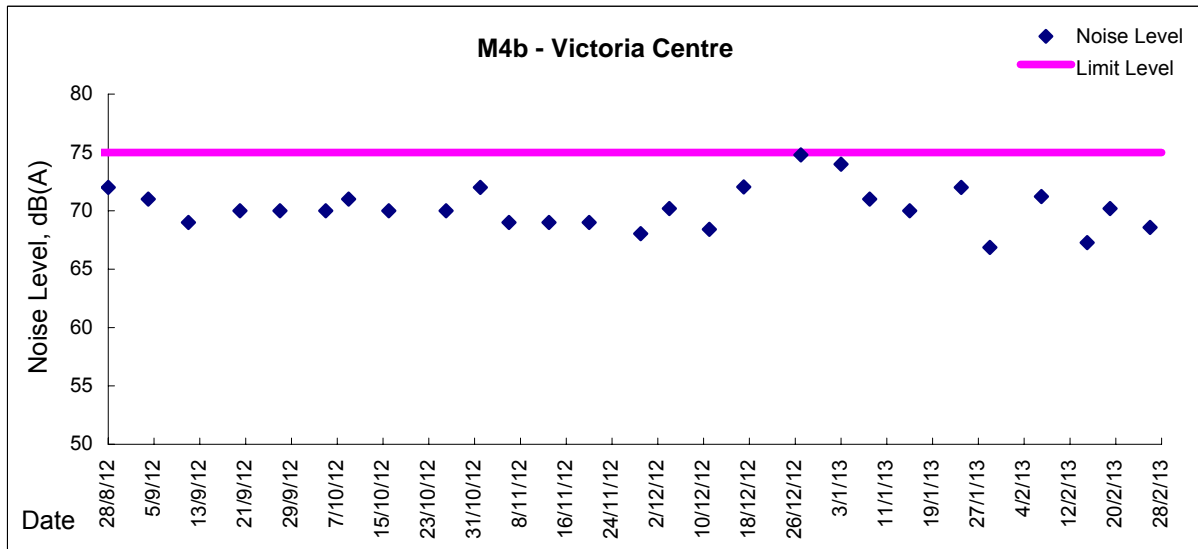


**Graphic Presentation of Noise Monitoring Result**  
**Day Time (0700 - 1900hrs on normal weekdays)**



**Graphic Presentation of Noise Monitoring Result**

**Day Time (0700 - 1900hrs on normal weekdays)**

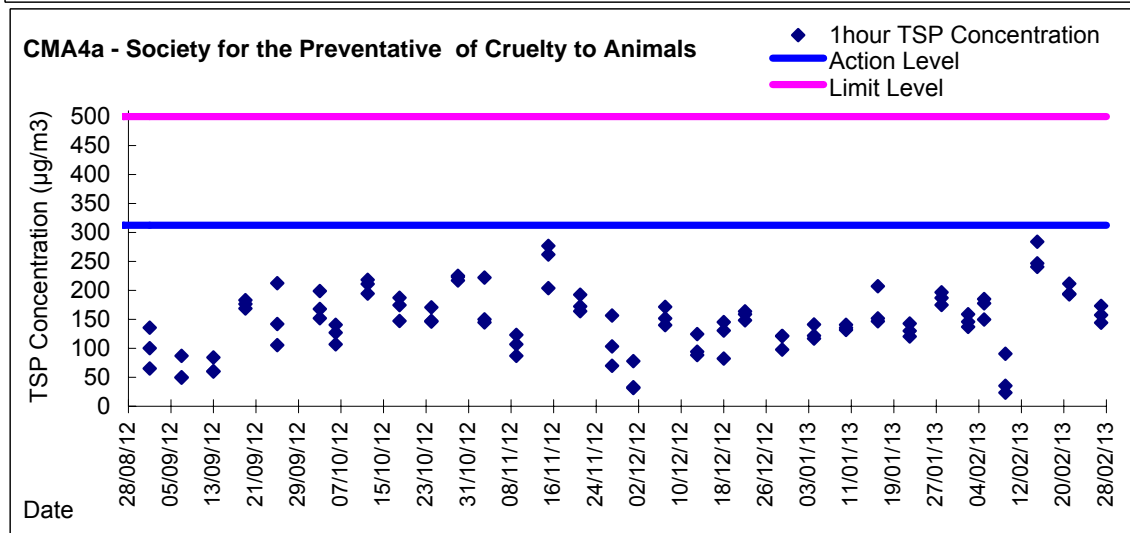
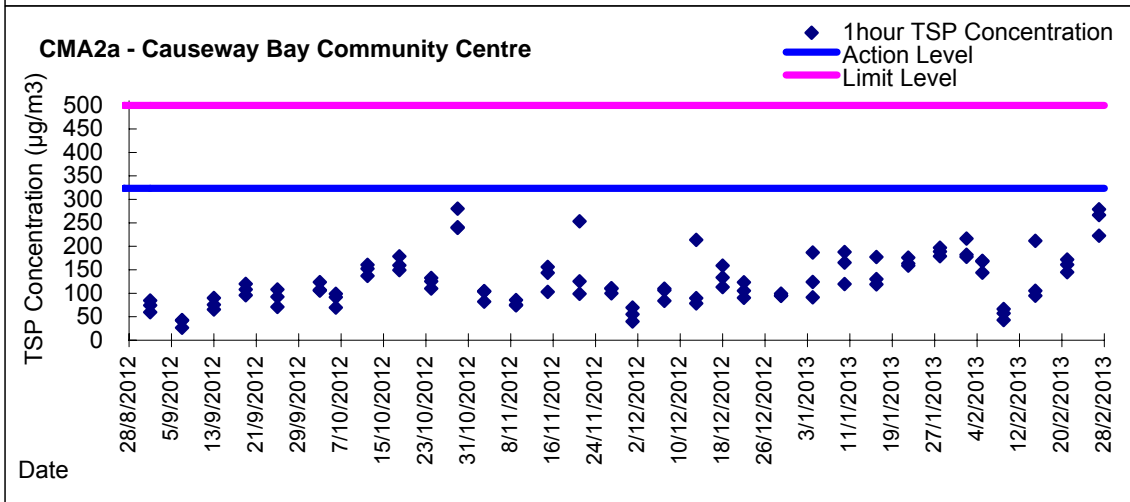
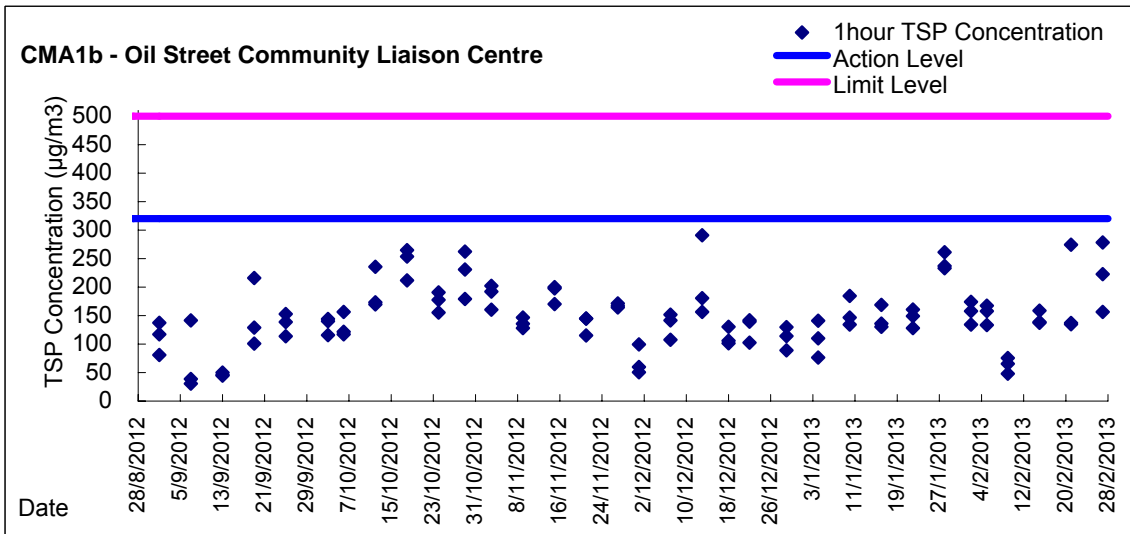




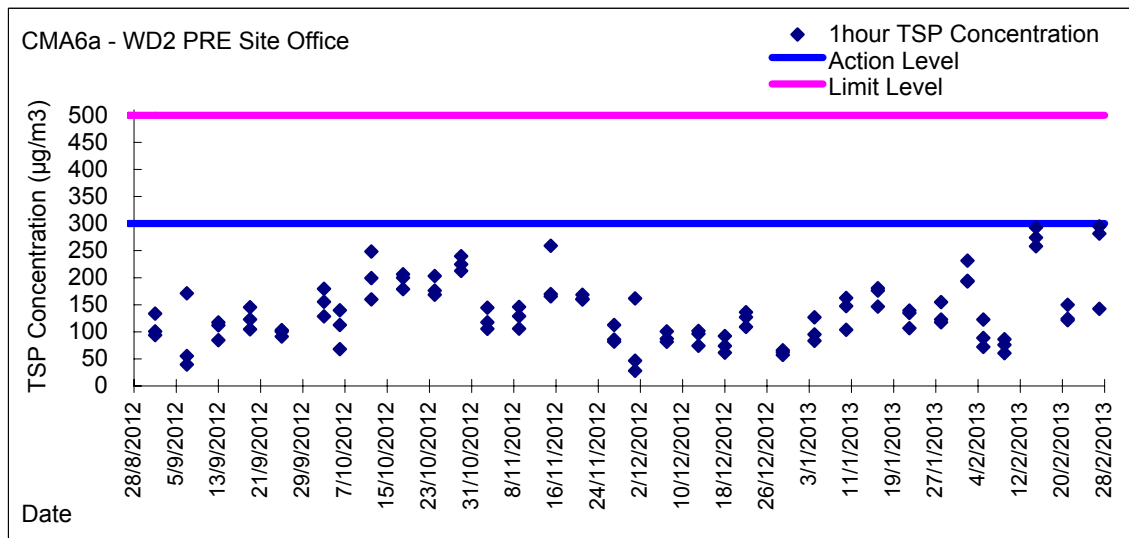
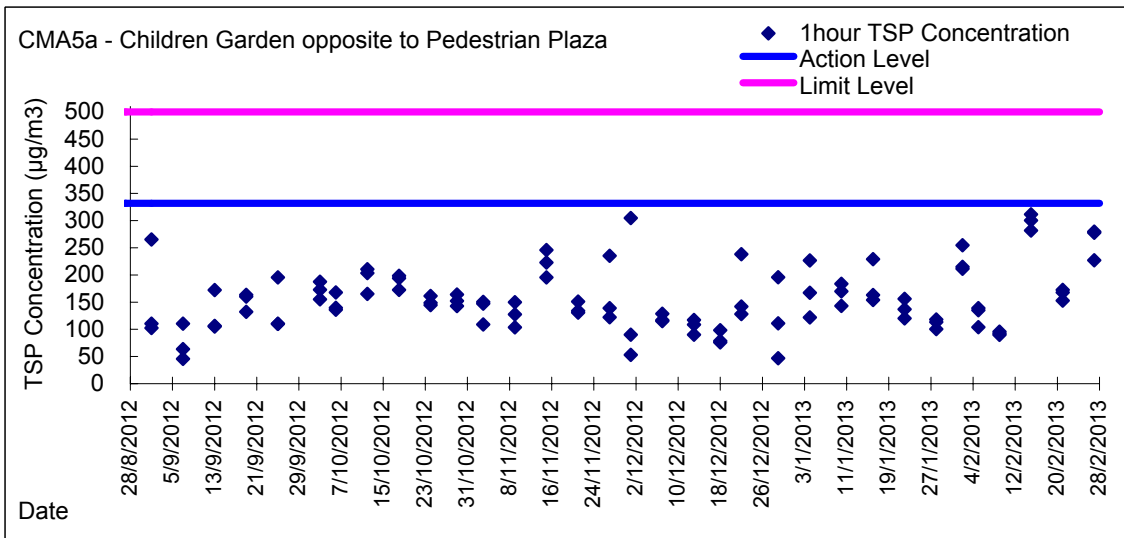
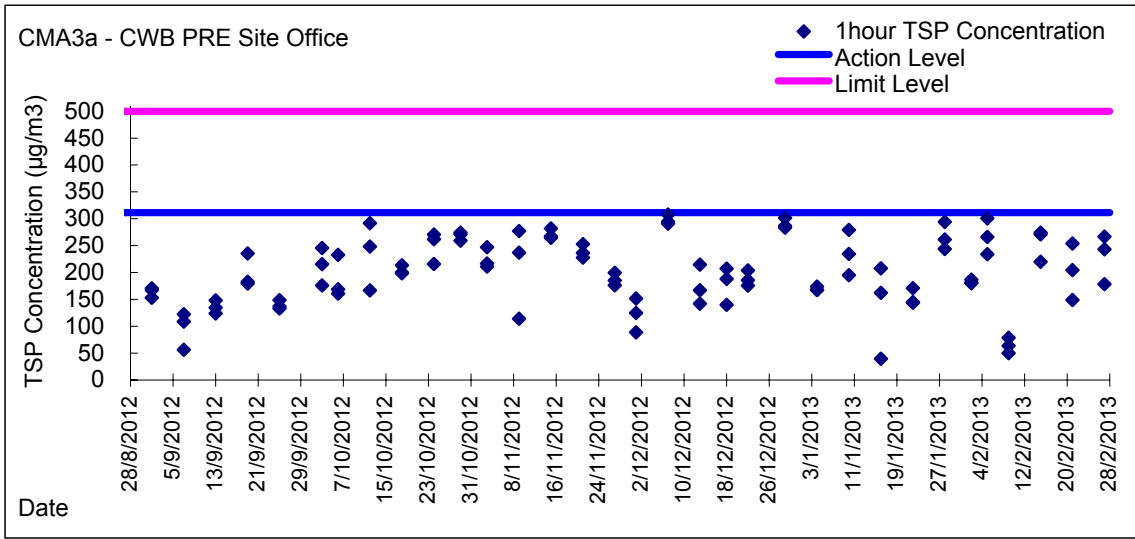
***Appendix 4.2***  
***Air Quality Monitoring Graphical Presentations***



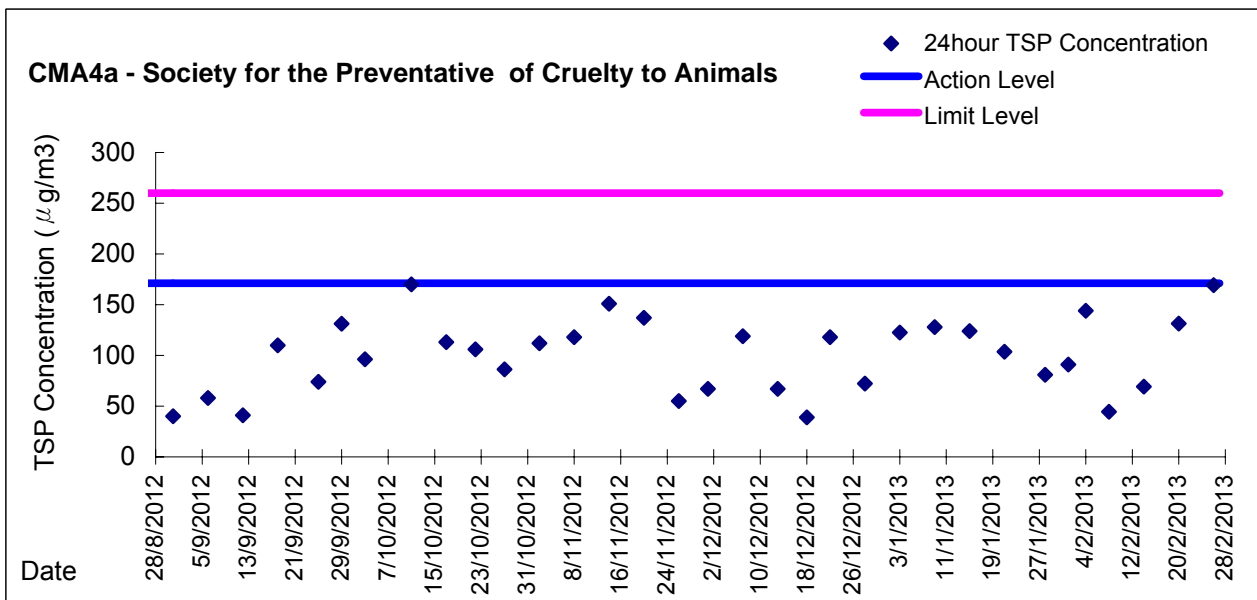
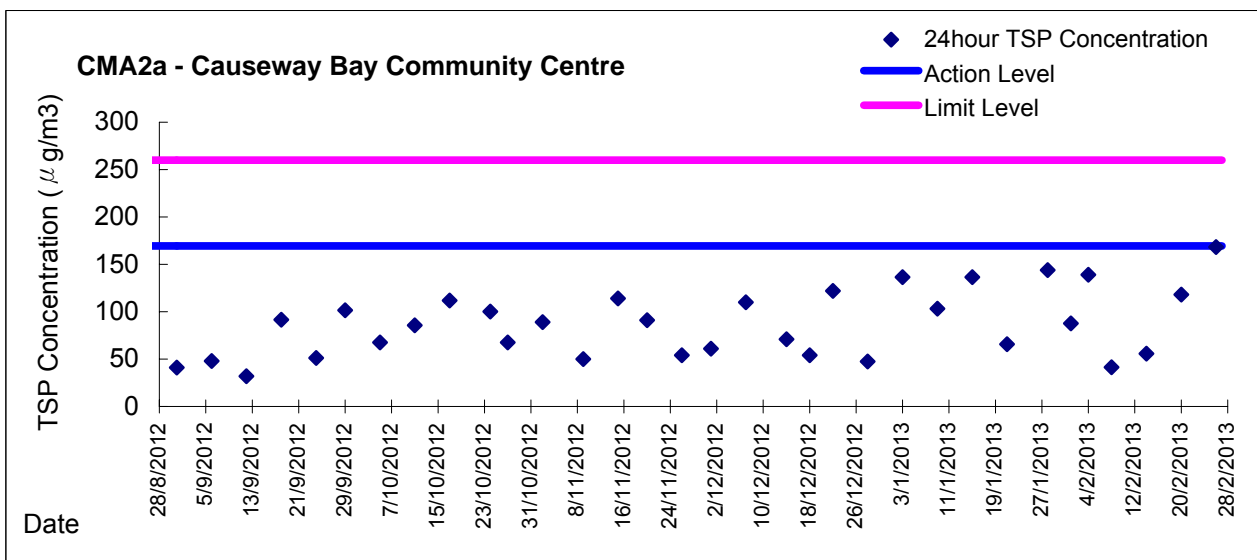
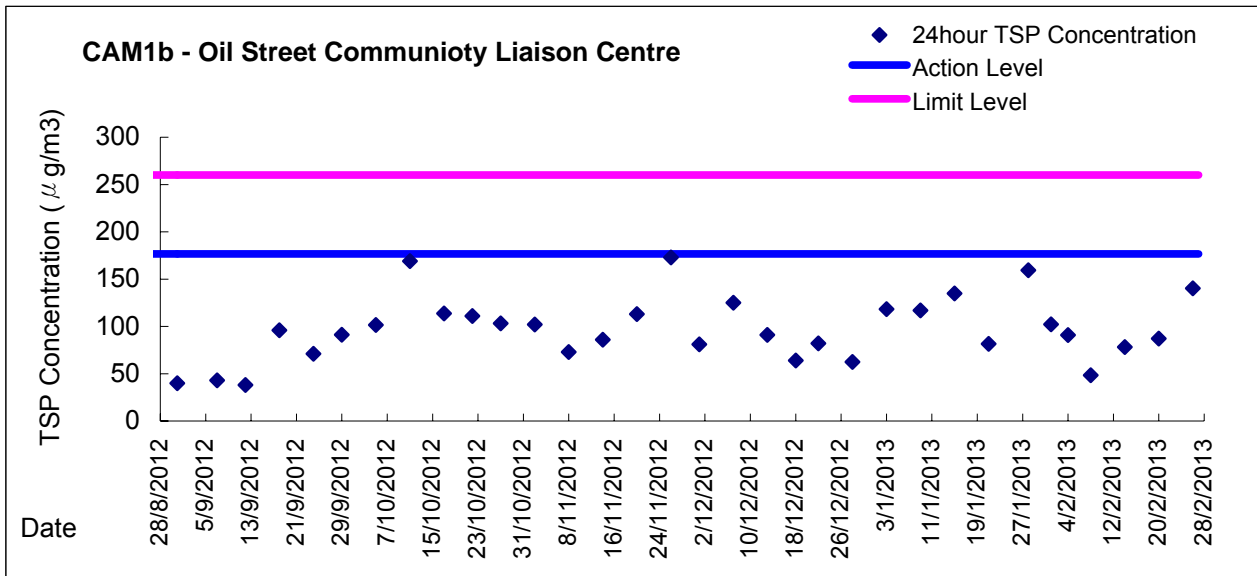
Graphic Presentation of 1 hour TSP Result



Graphic Presentation of 1 hour TSP Result

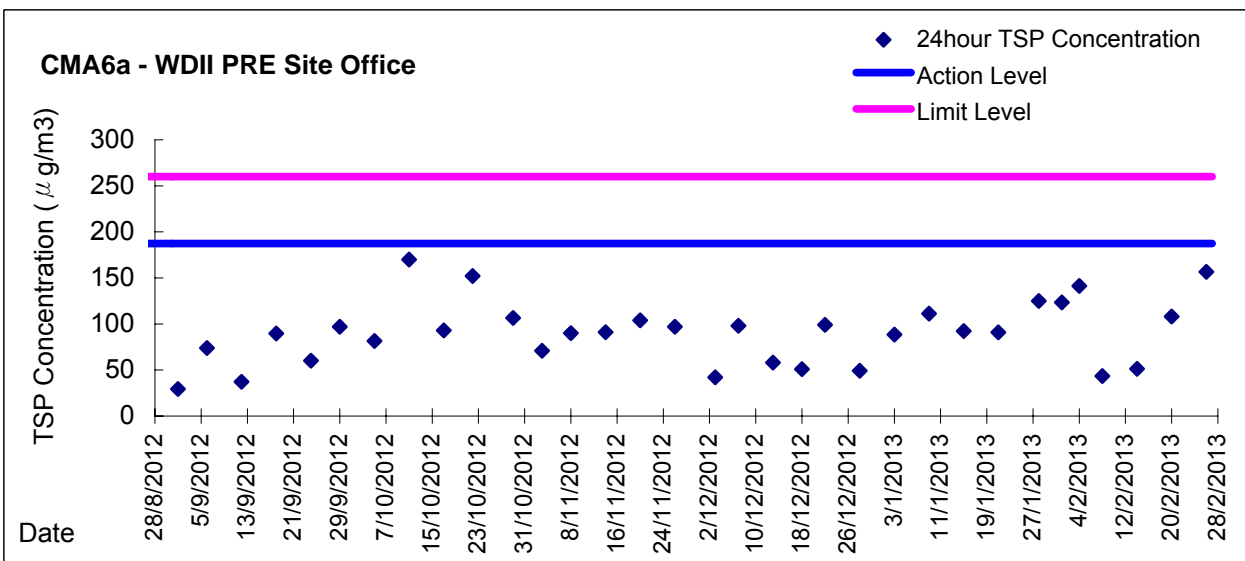
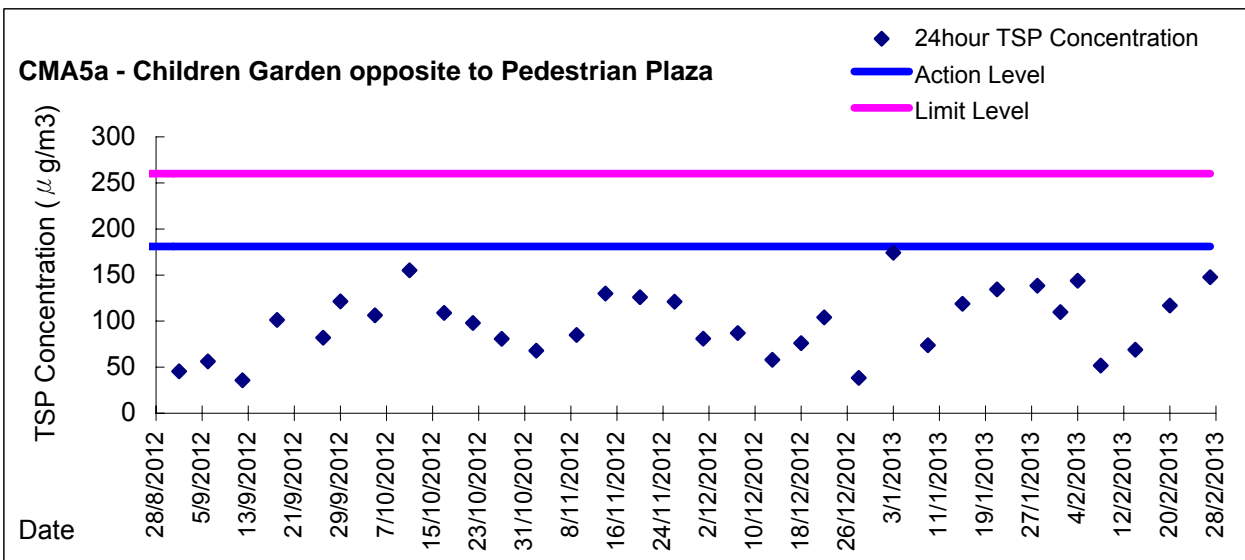
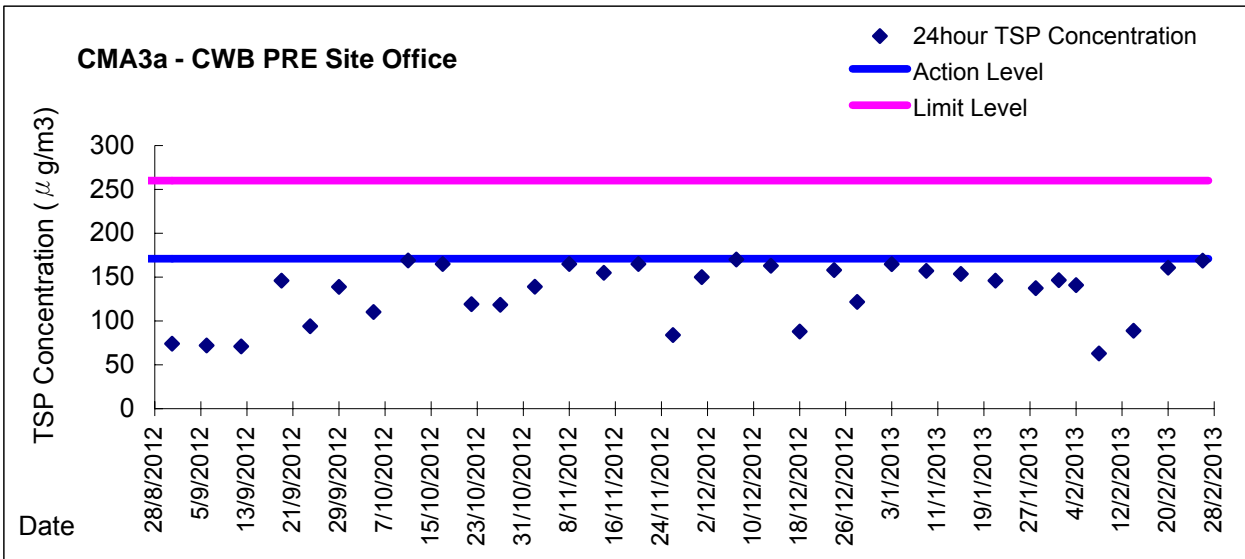


**Graphic Presentation of 24 hour TSP Result**





Graphic Presentation of 24 hour TSP Result





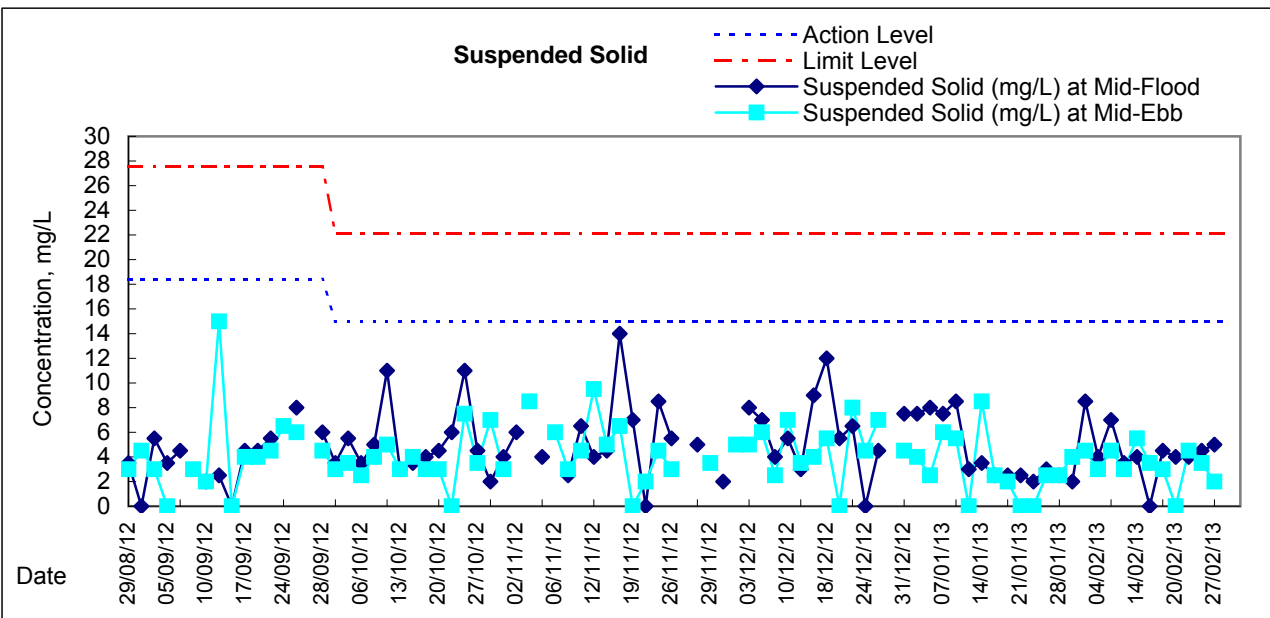
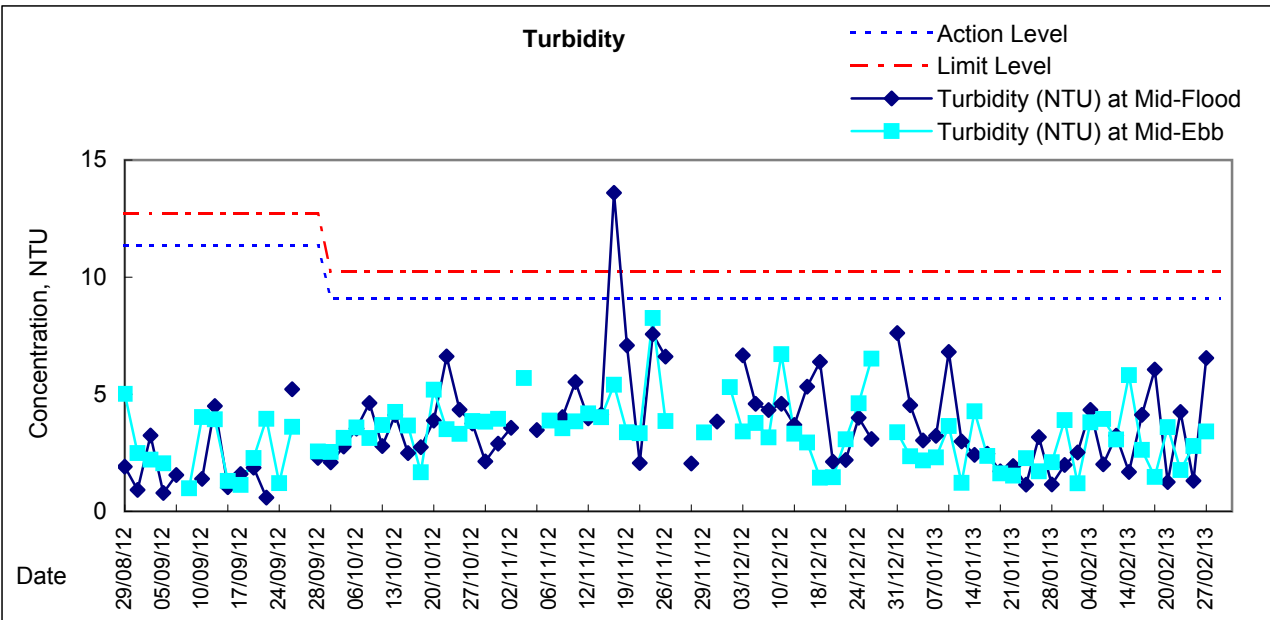
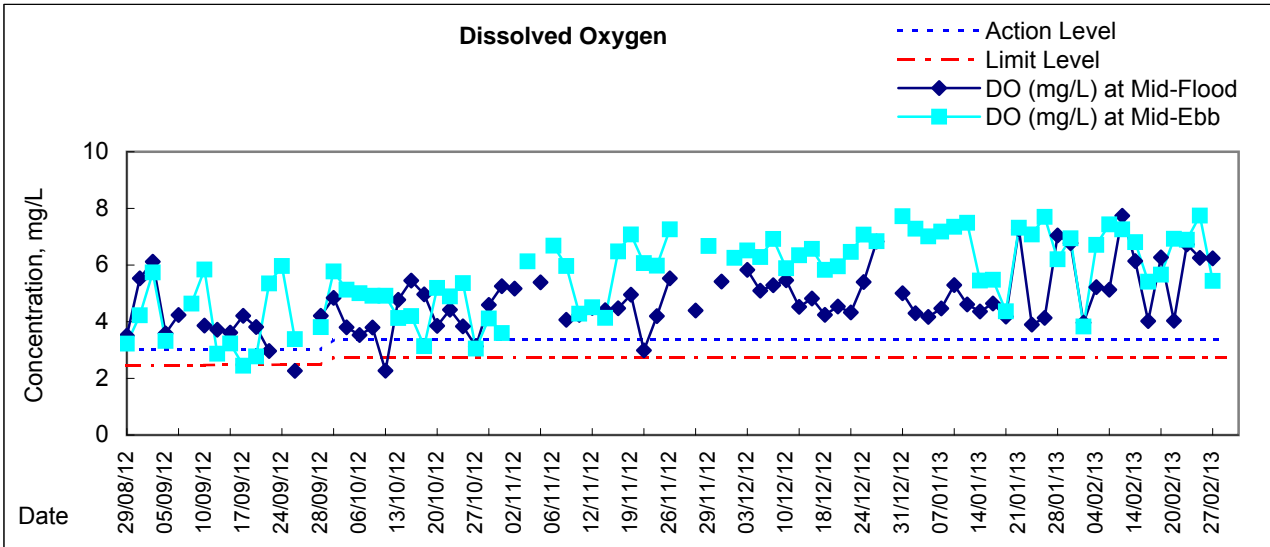


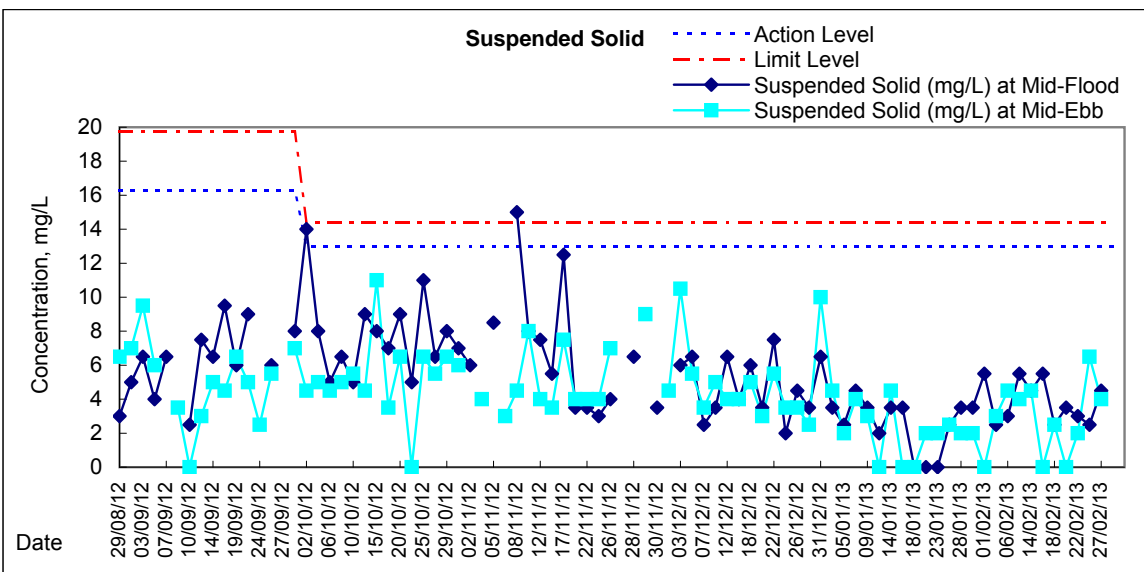
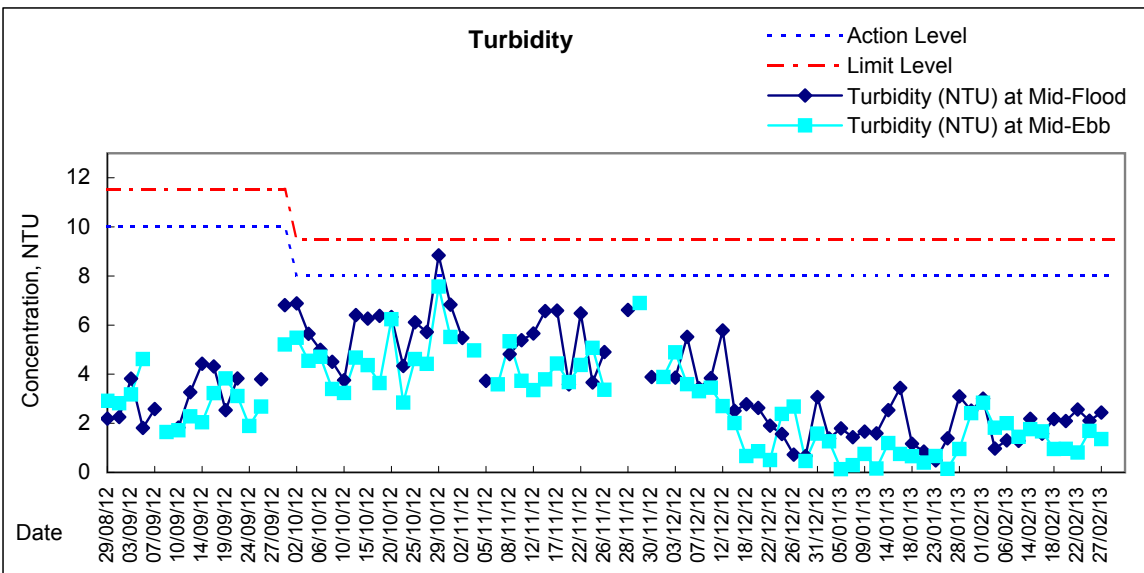
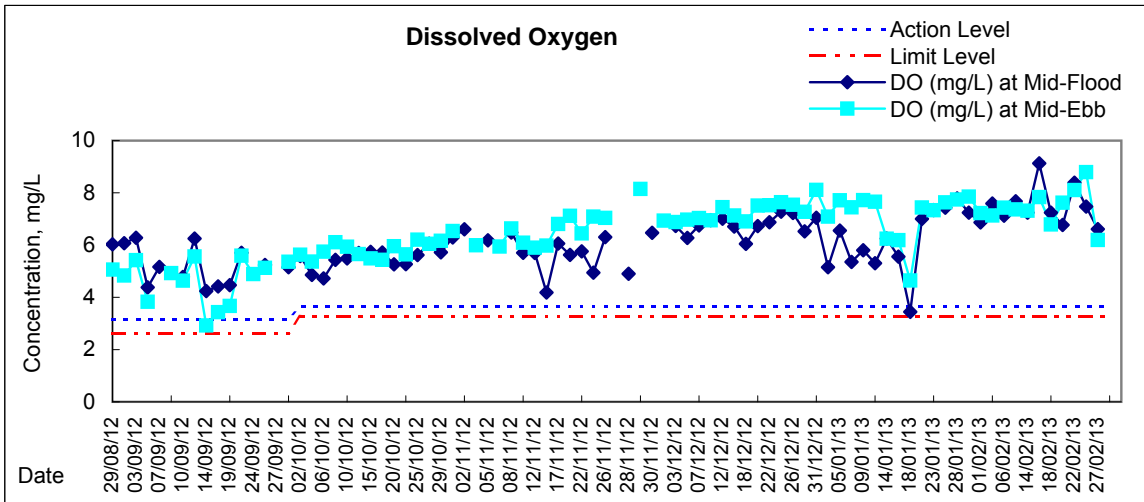
***Appendix 4.3***

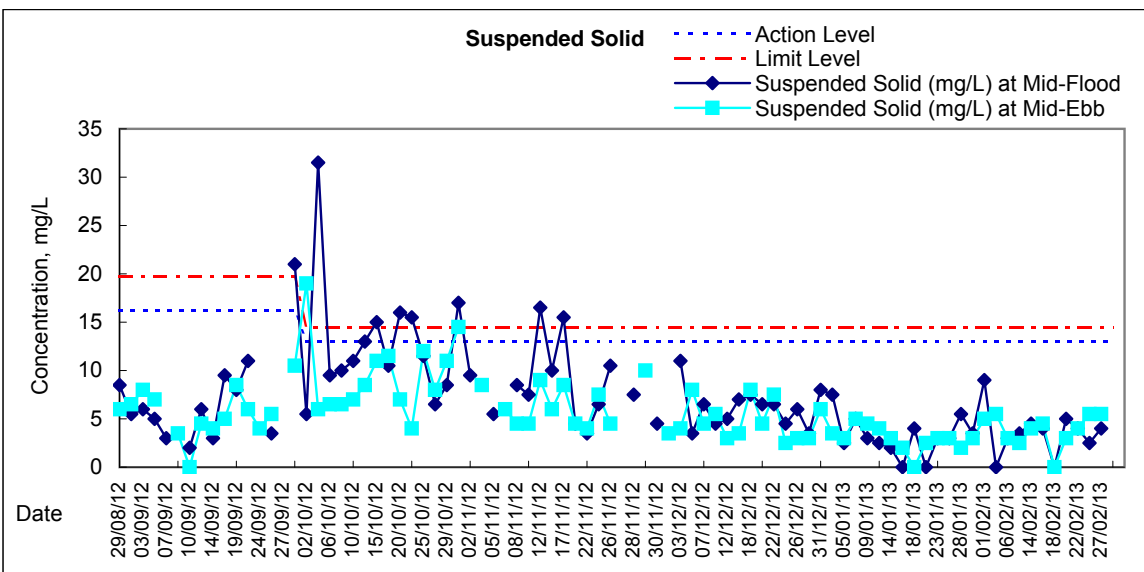
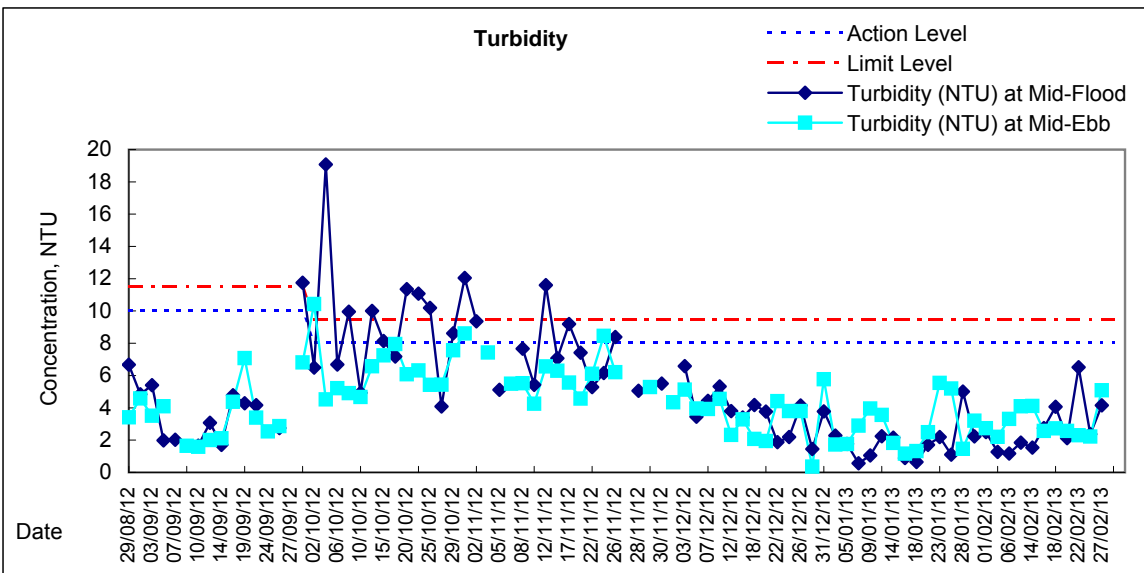
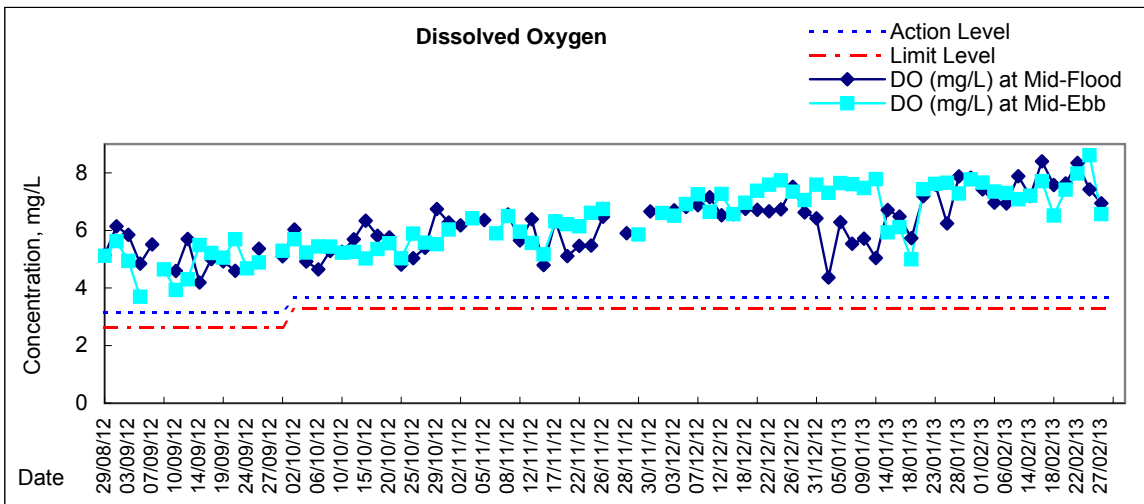
***Water Quality Monitoring Graphical Presentations***

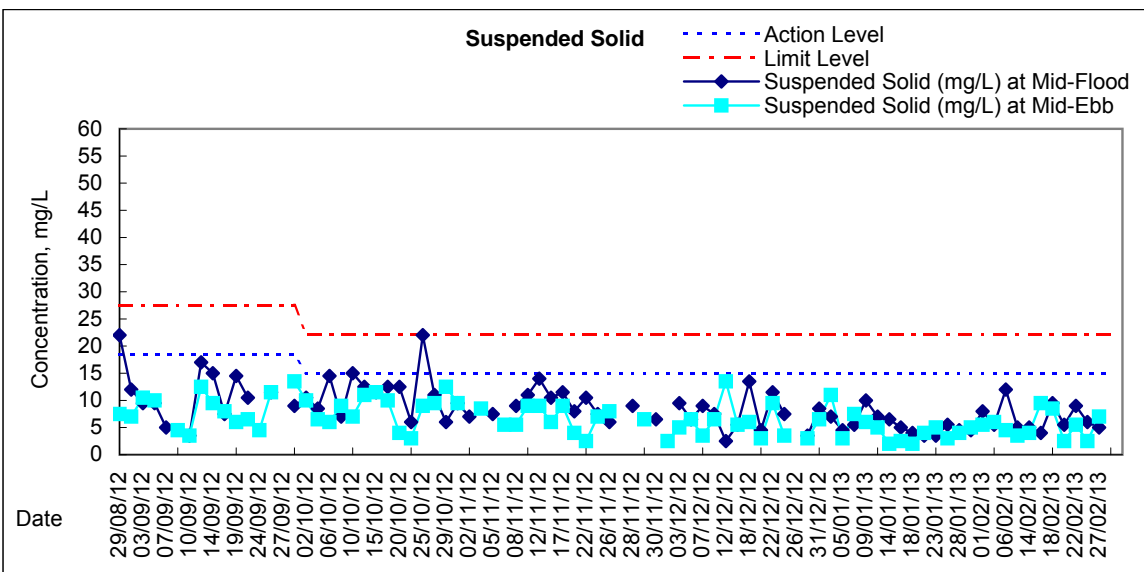
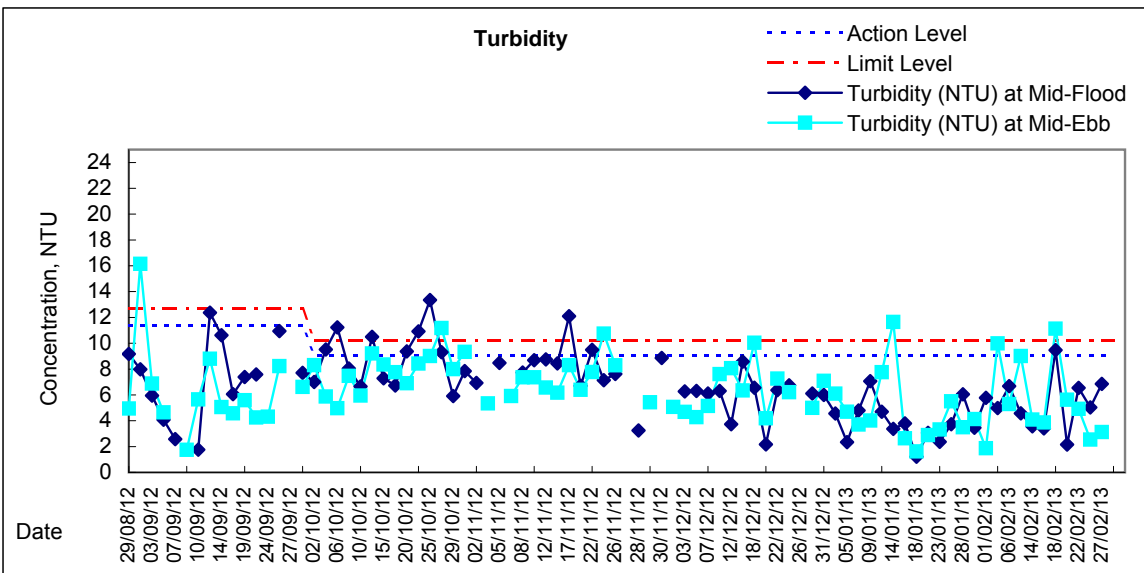
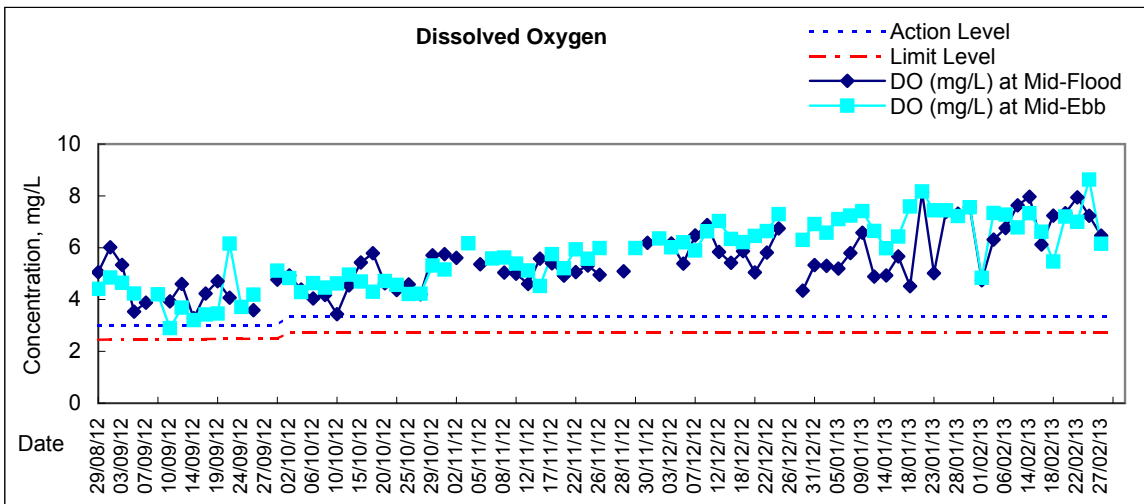


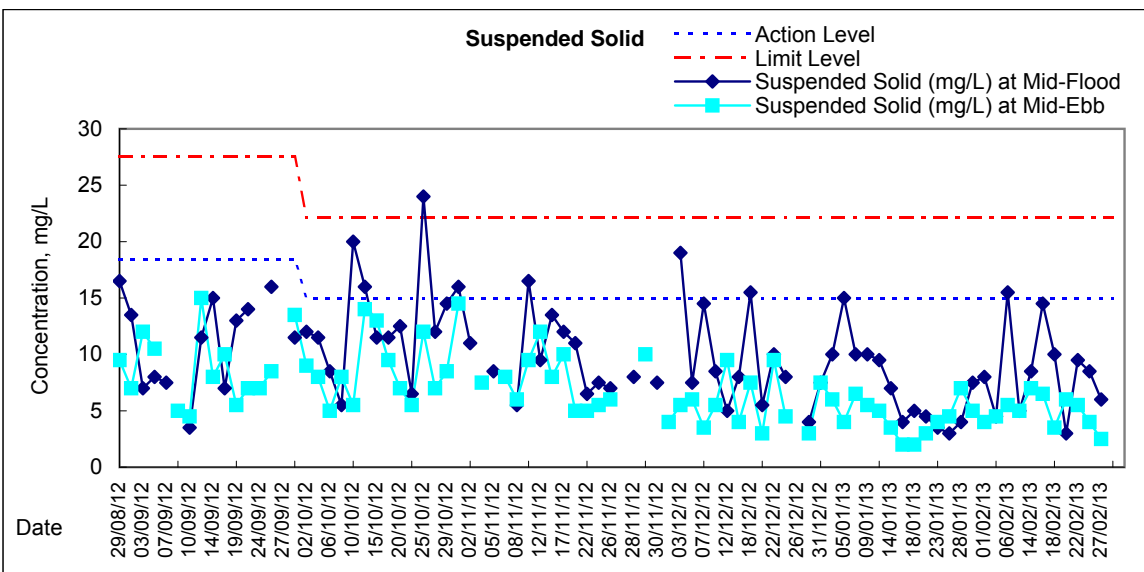
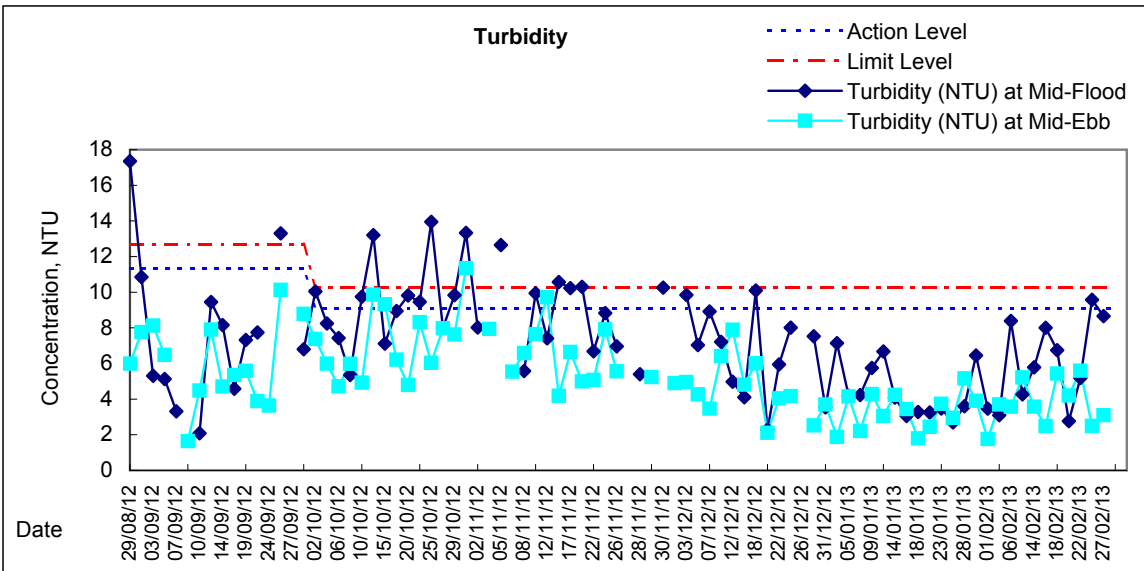
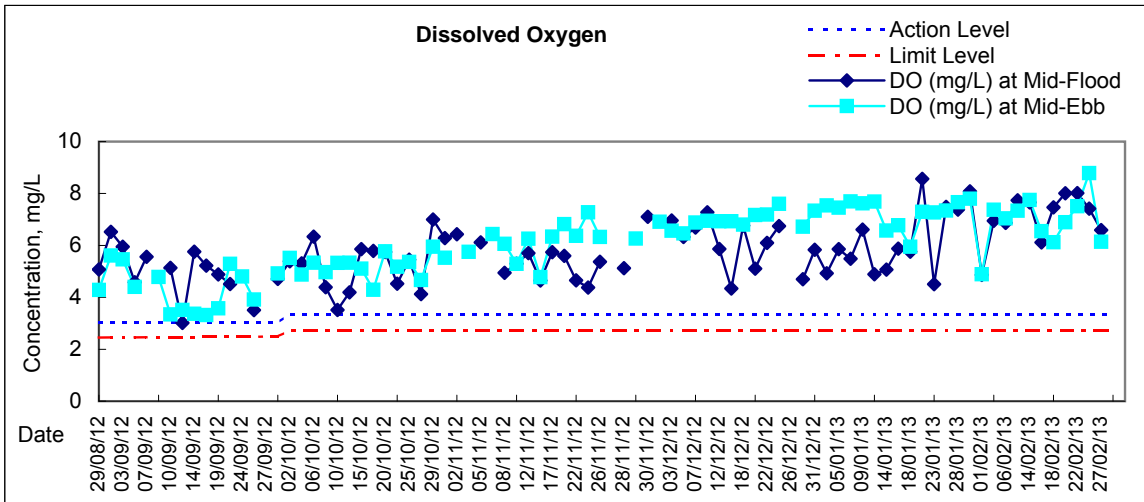
# Graphic Presentation of Water Quality Result of C7 - Windsor House

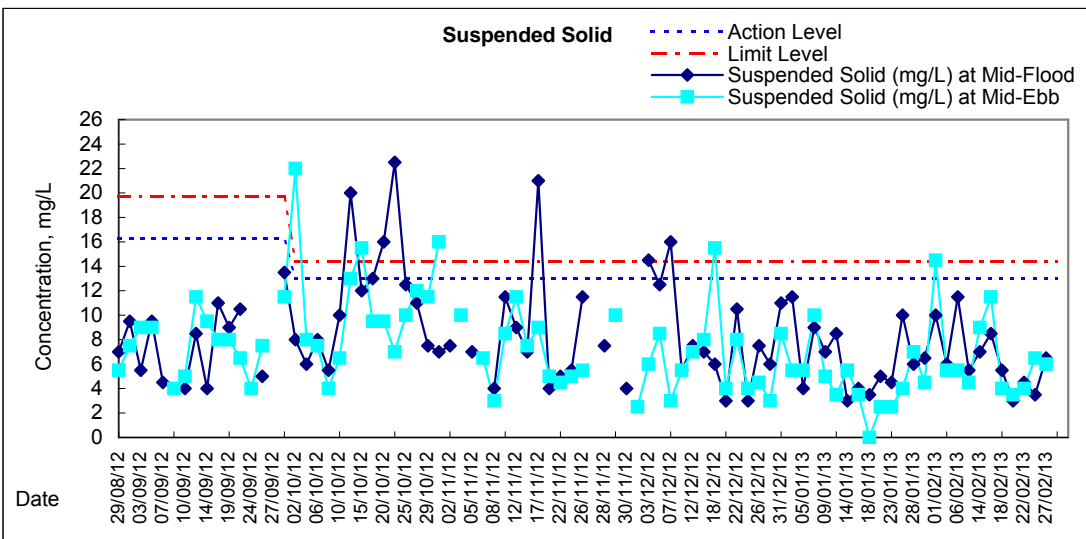
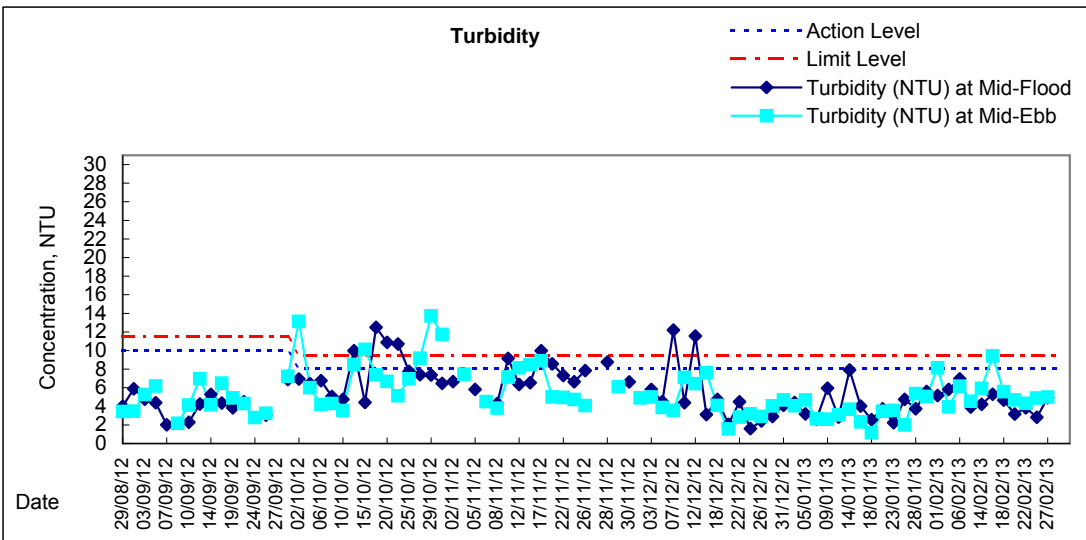
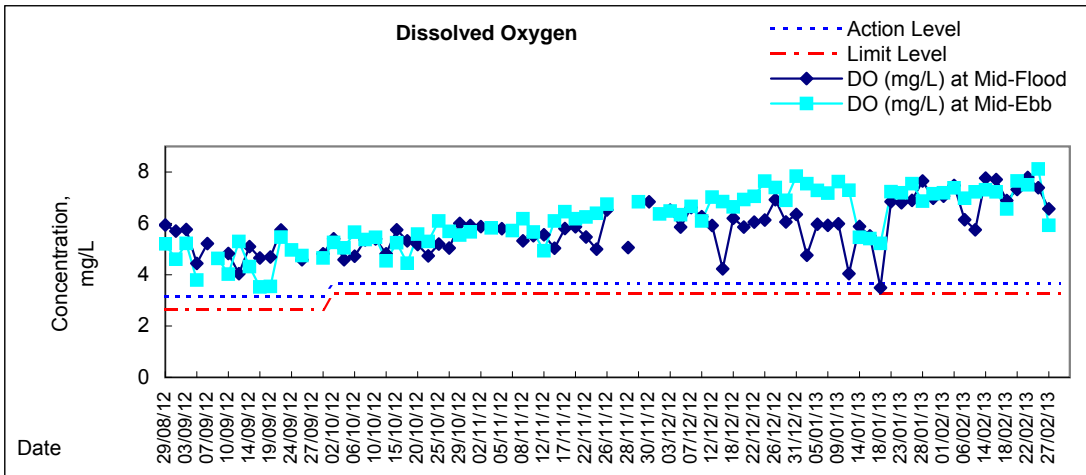




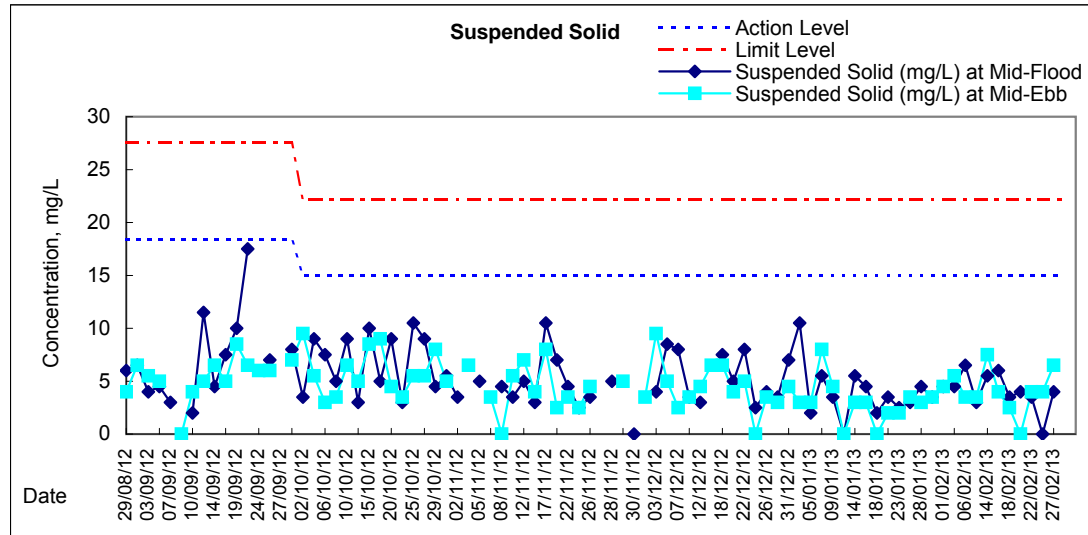
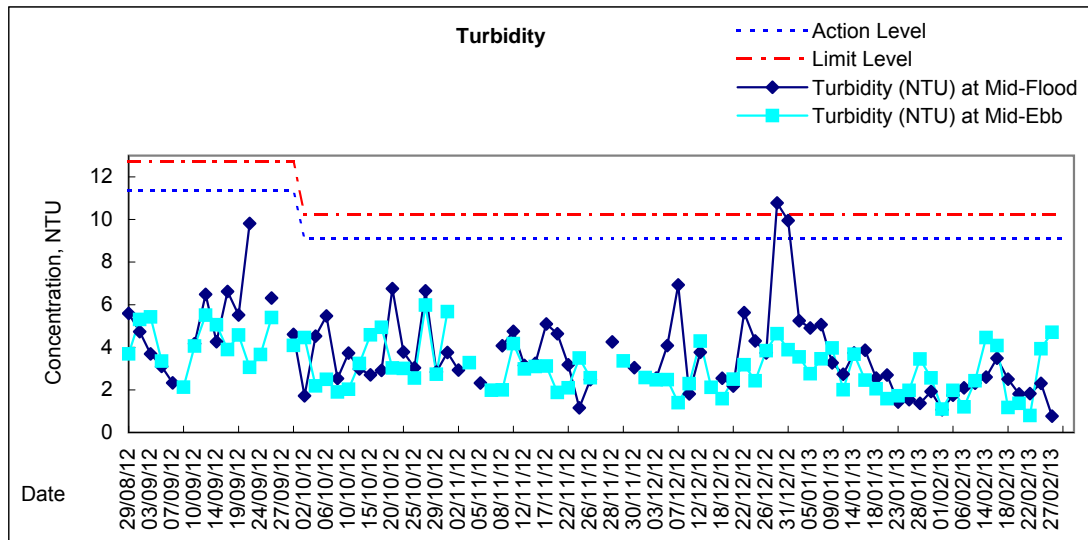
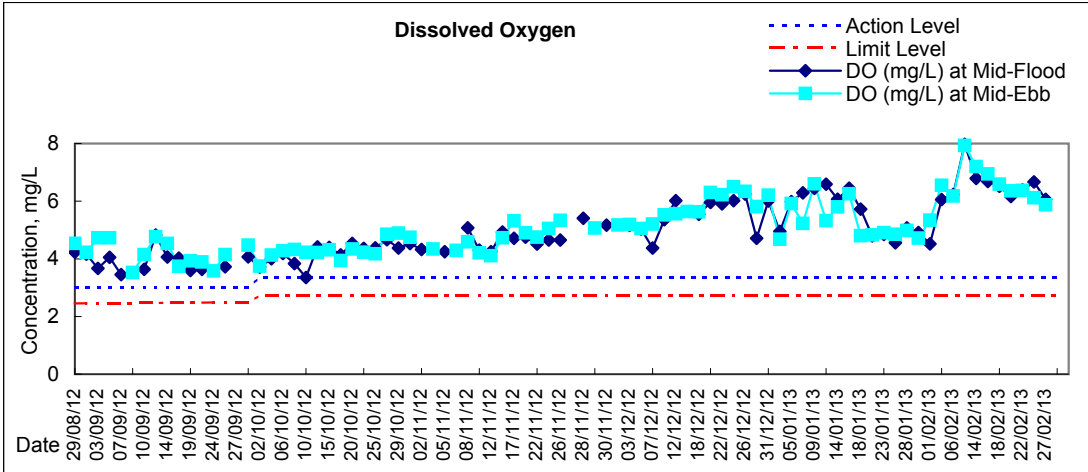




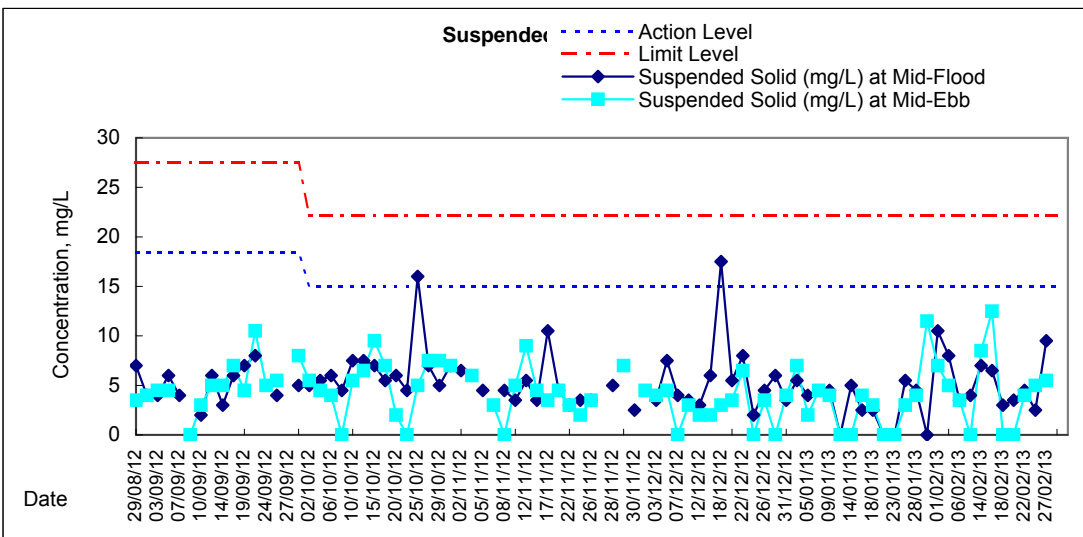
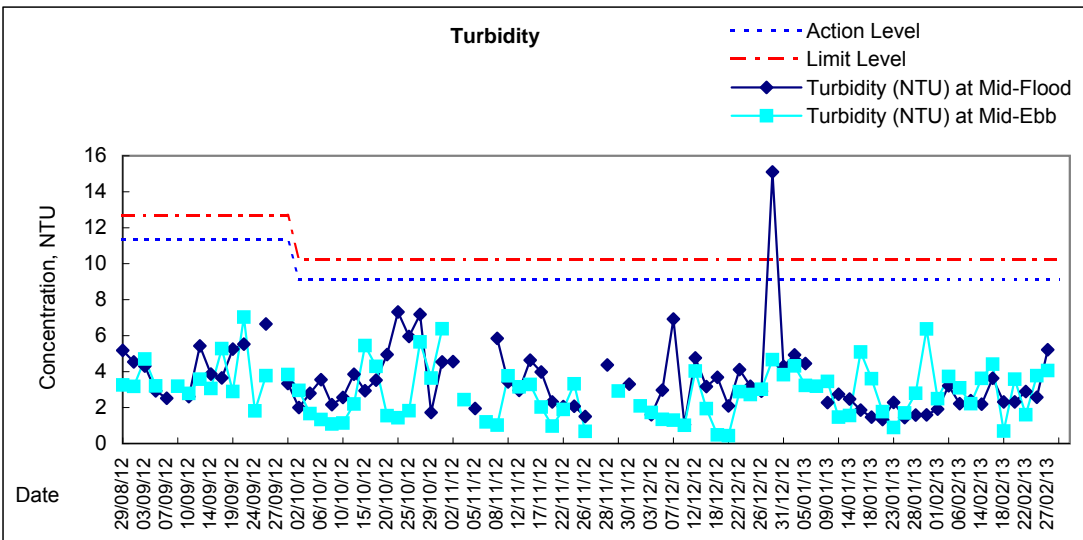
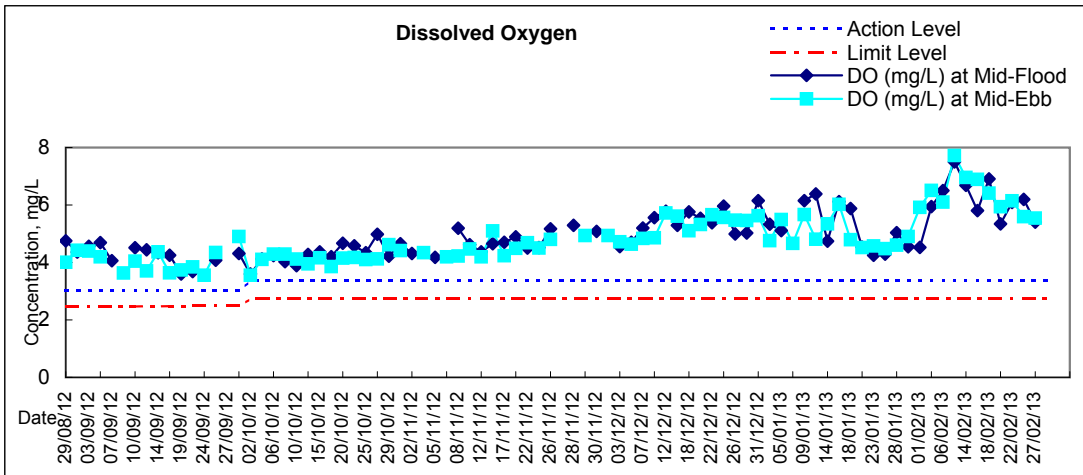


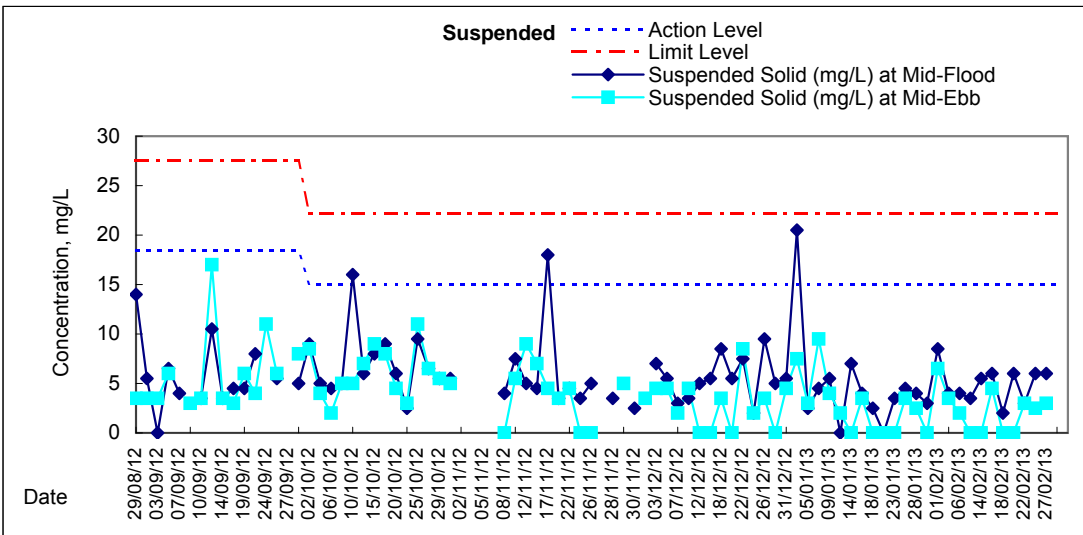
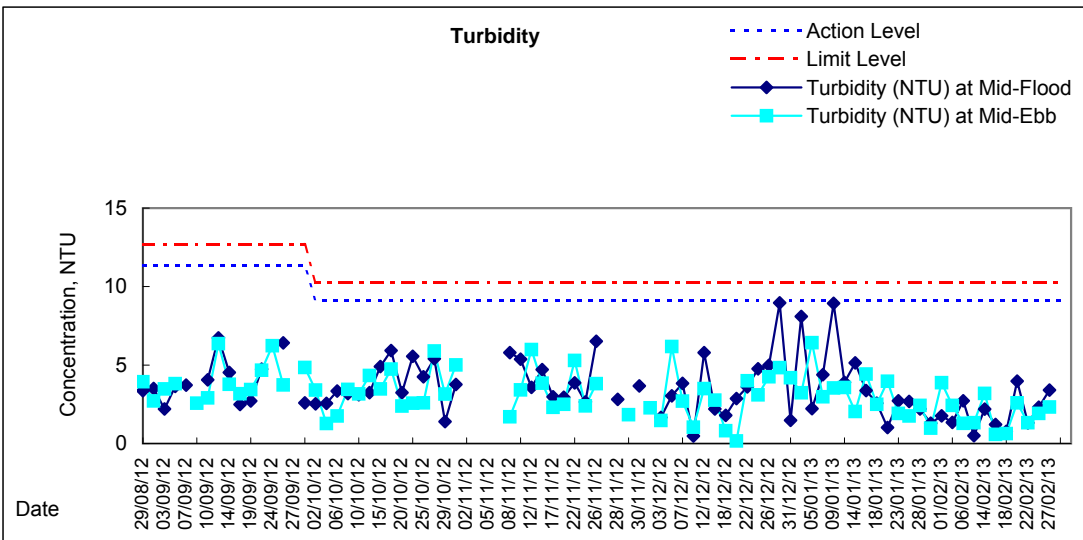
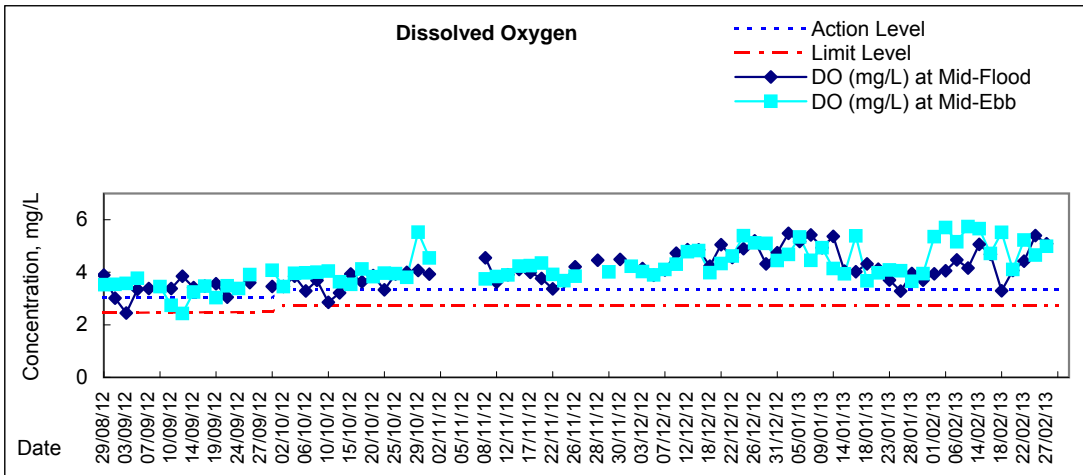


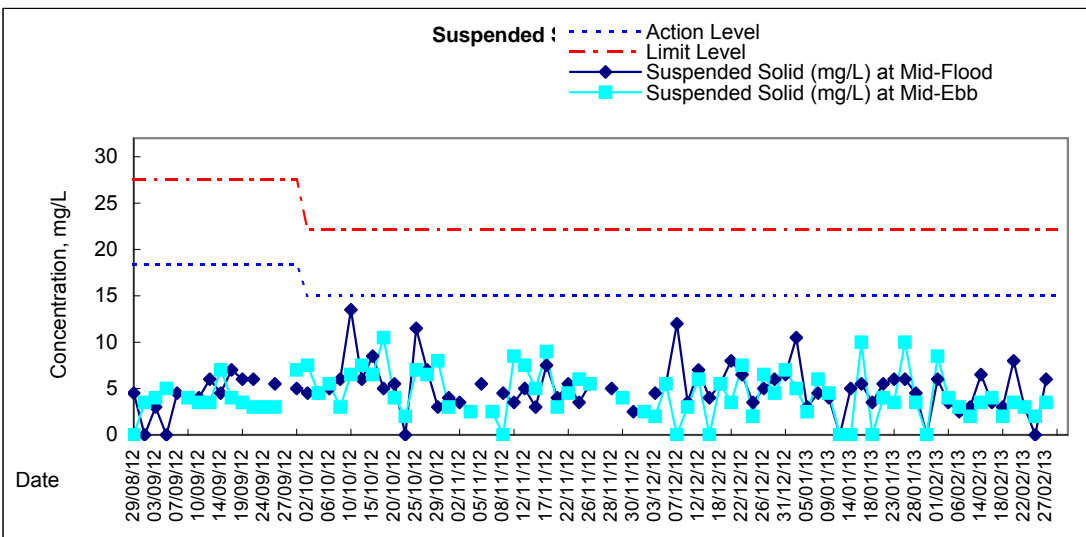
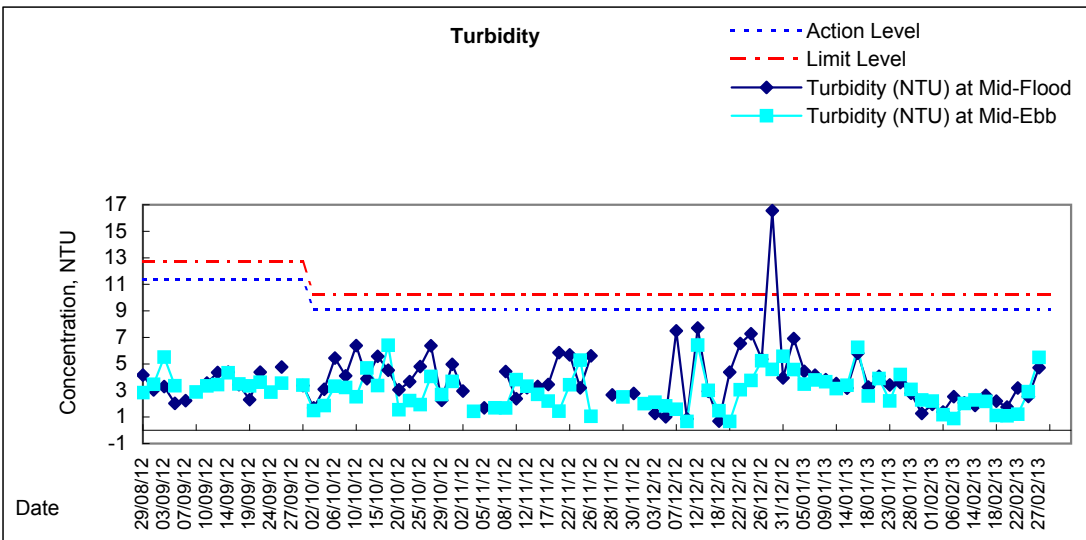
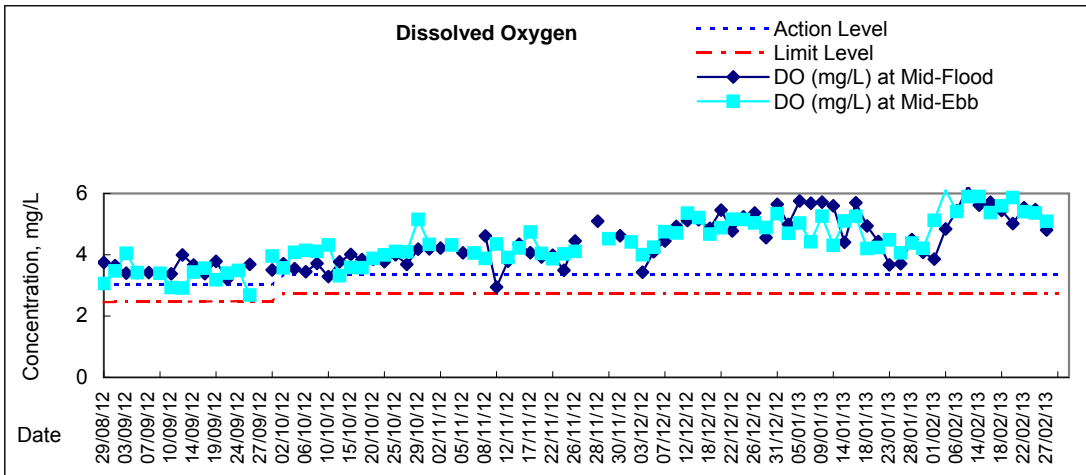
## Graphic Presentation of Water Quality Result of C1 - HKCEC





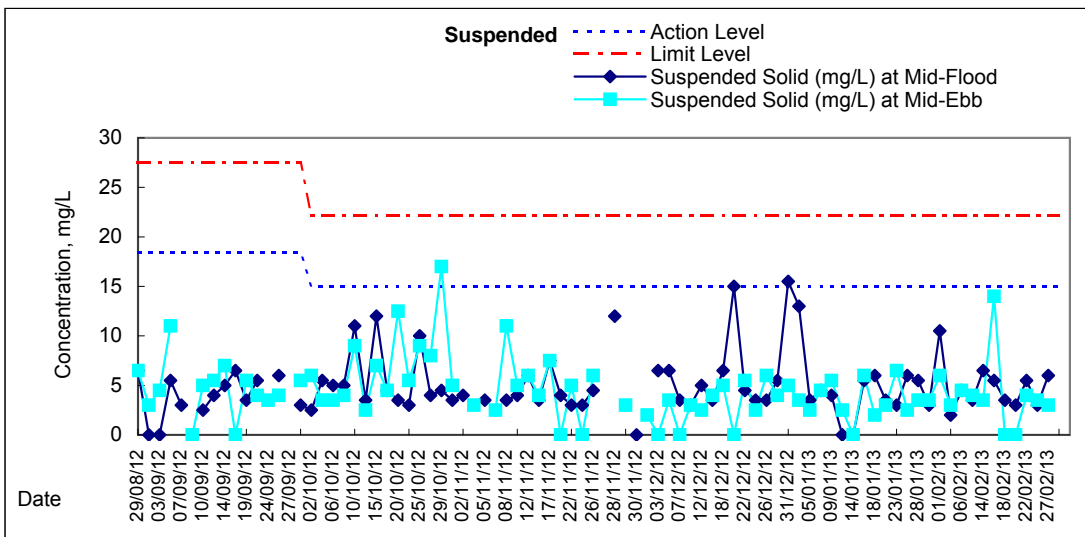
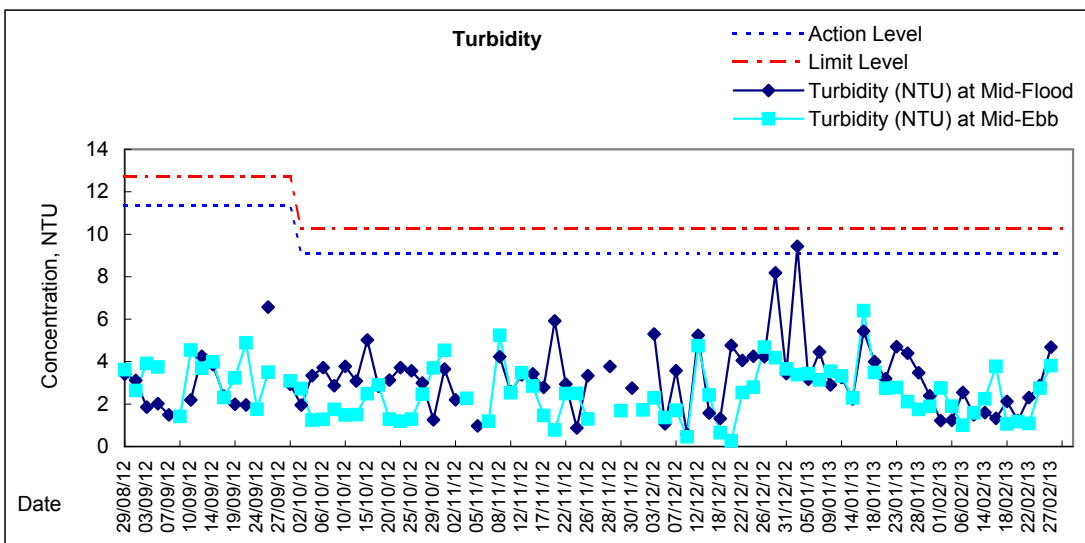
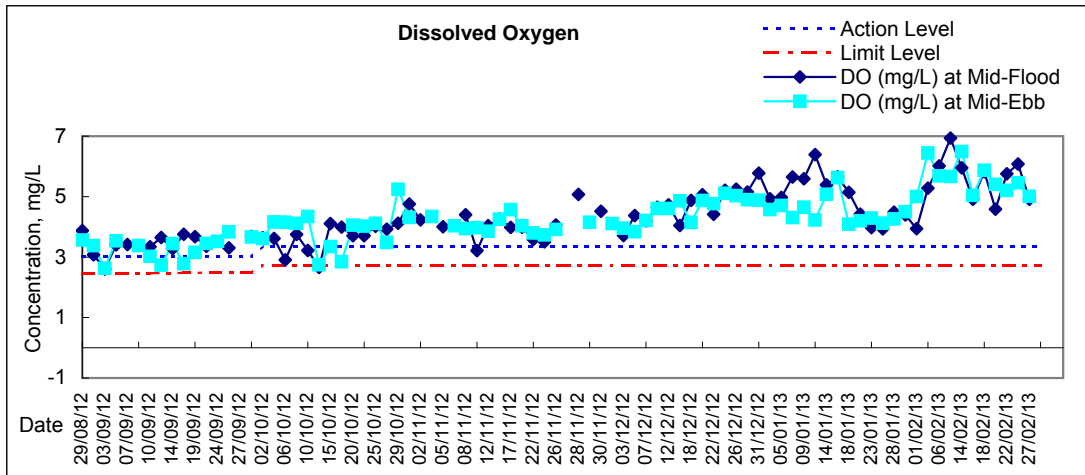






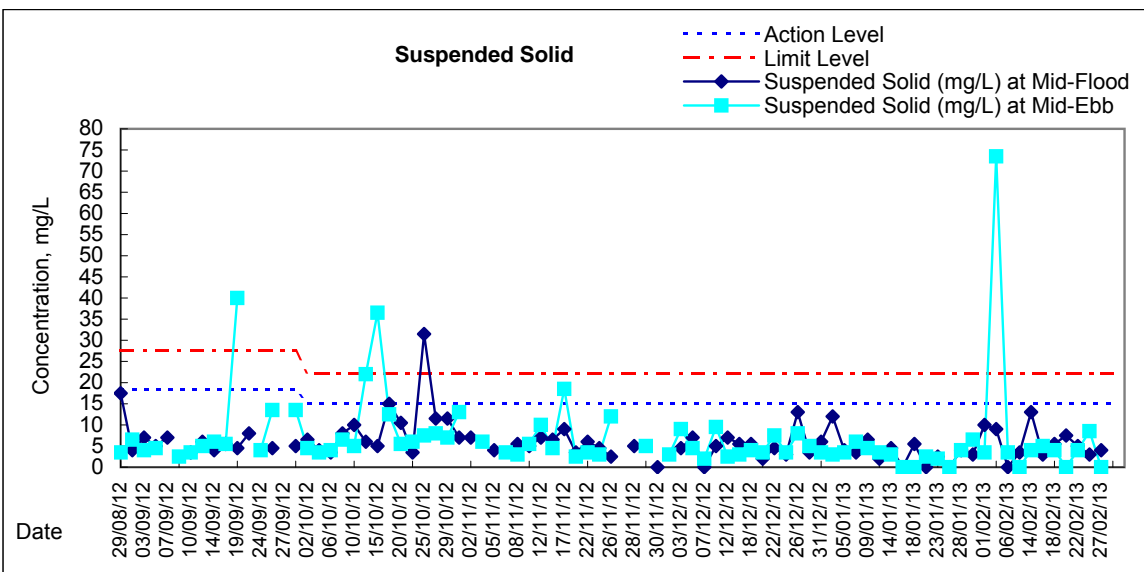
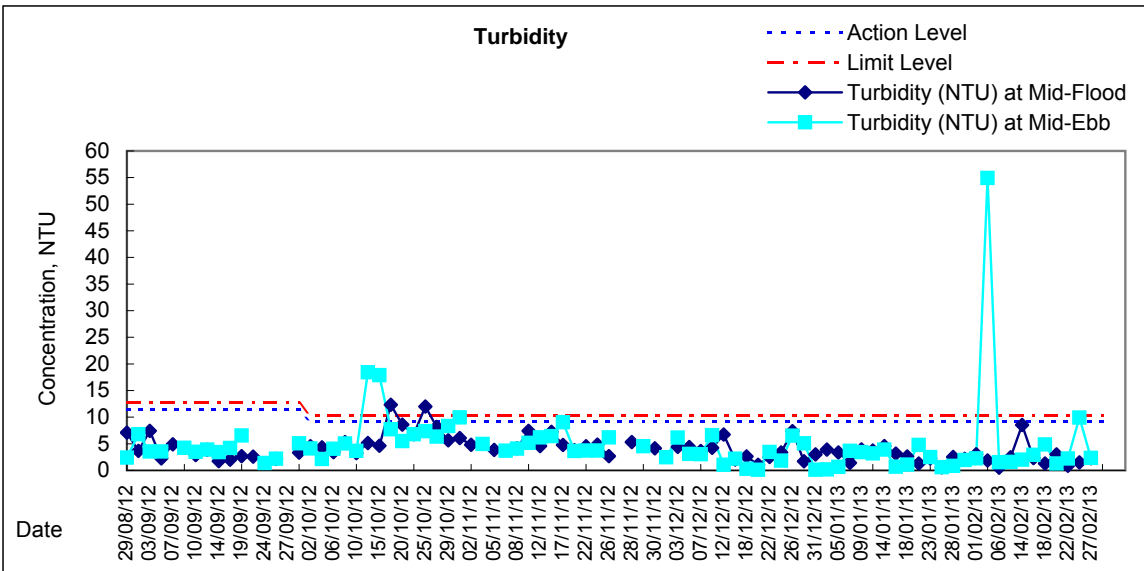
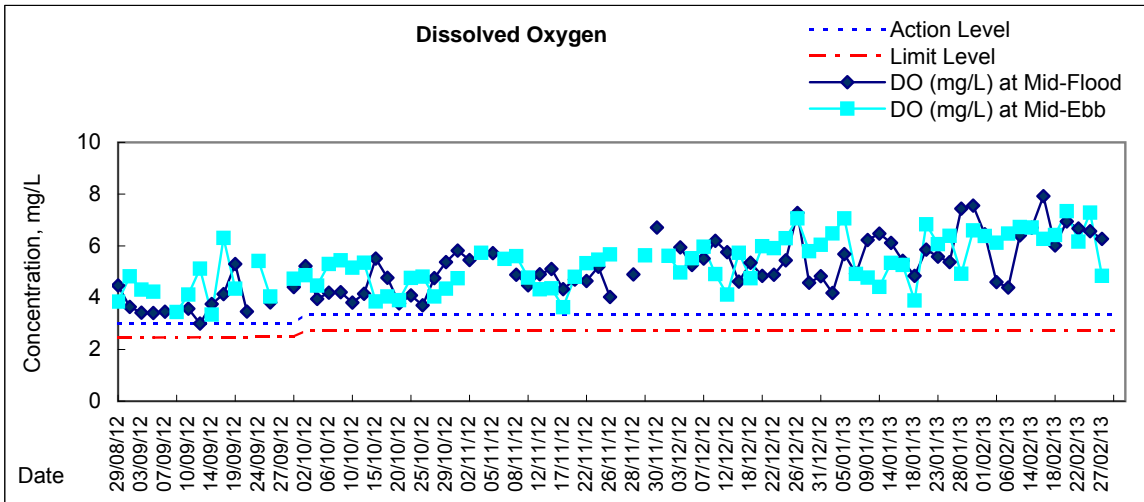


# Graphic Presentation of Water Quality Result of C4w - WCT and GEC (Western)



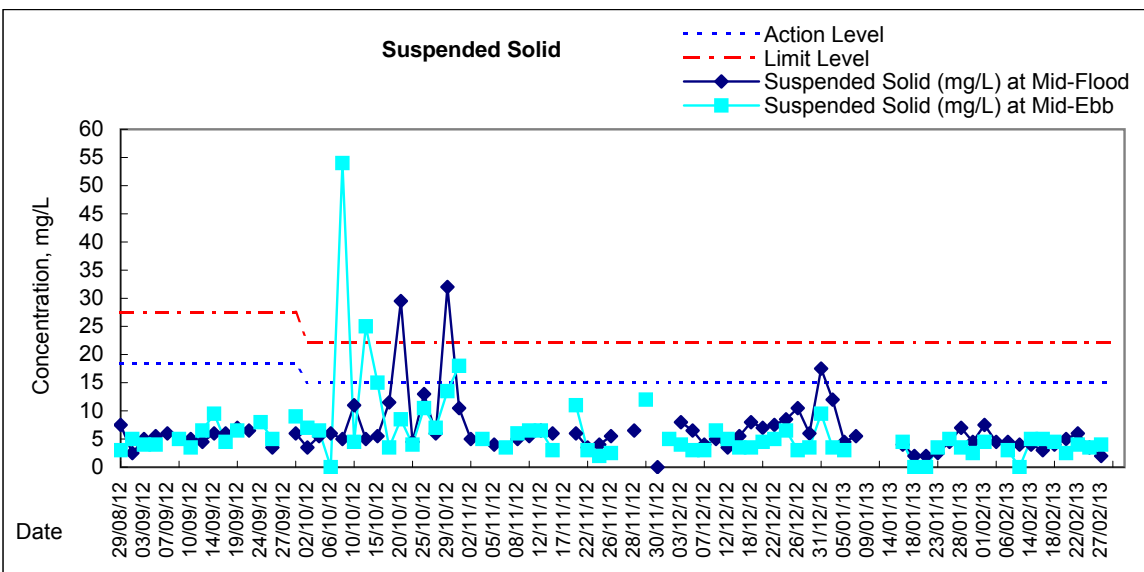
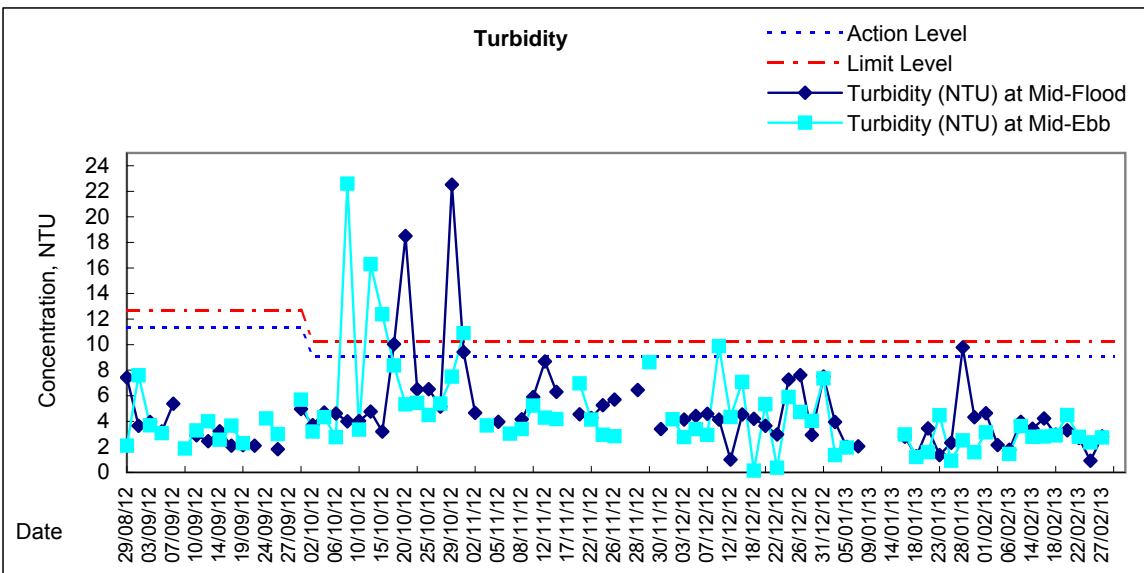
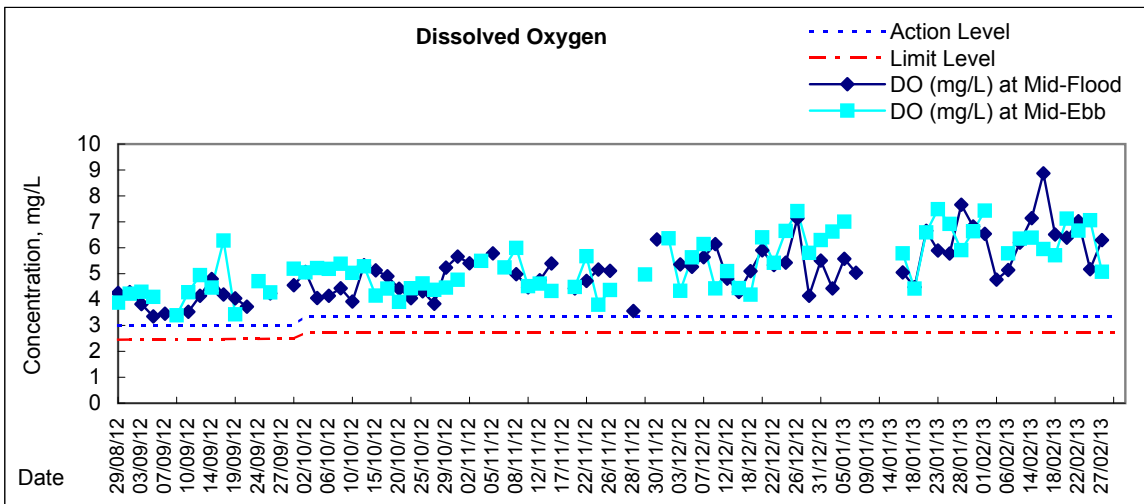


# Graphic Presentation of Water Quality Result of C5e - SHKC (Eastern)



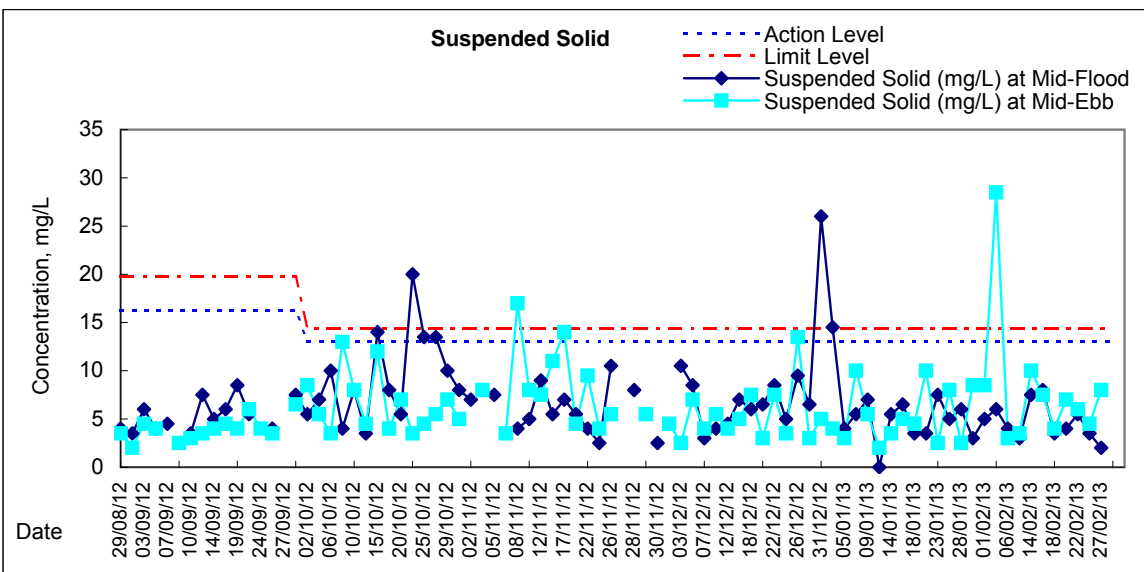
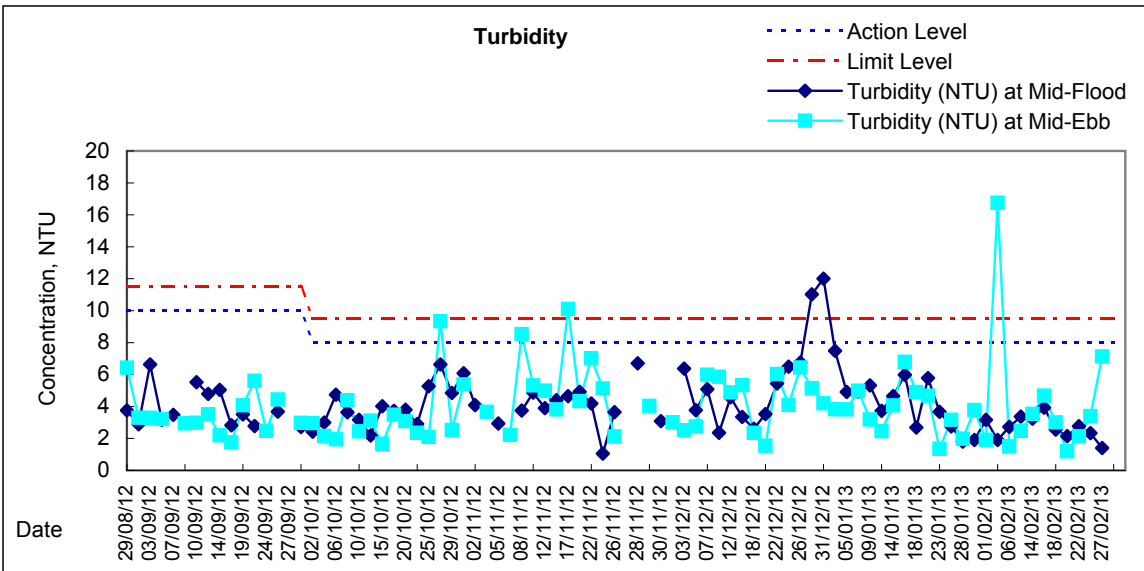
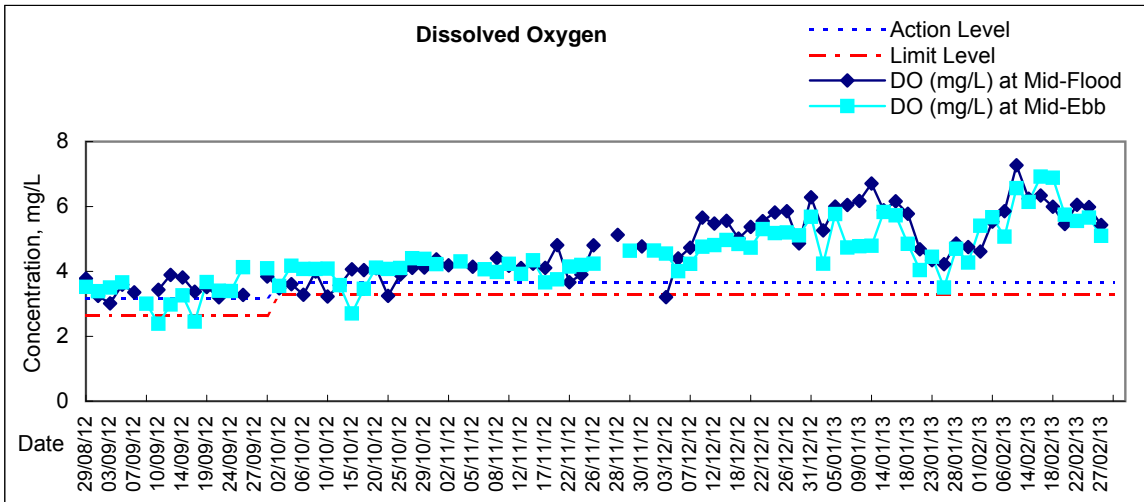


# Graphic Presentation of Water Quality Result of C5w - SHKC (Western)

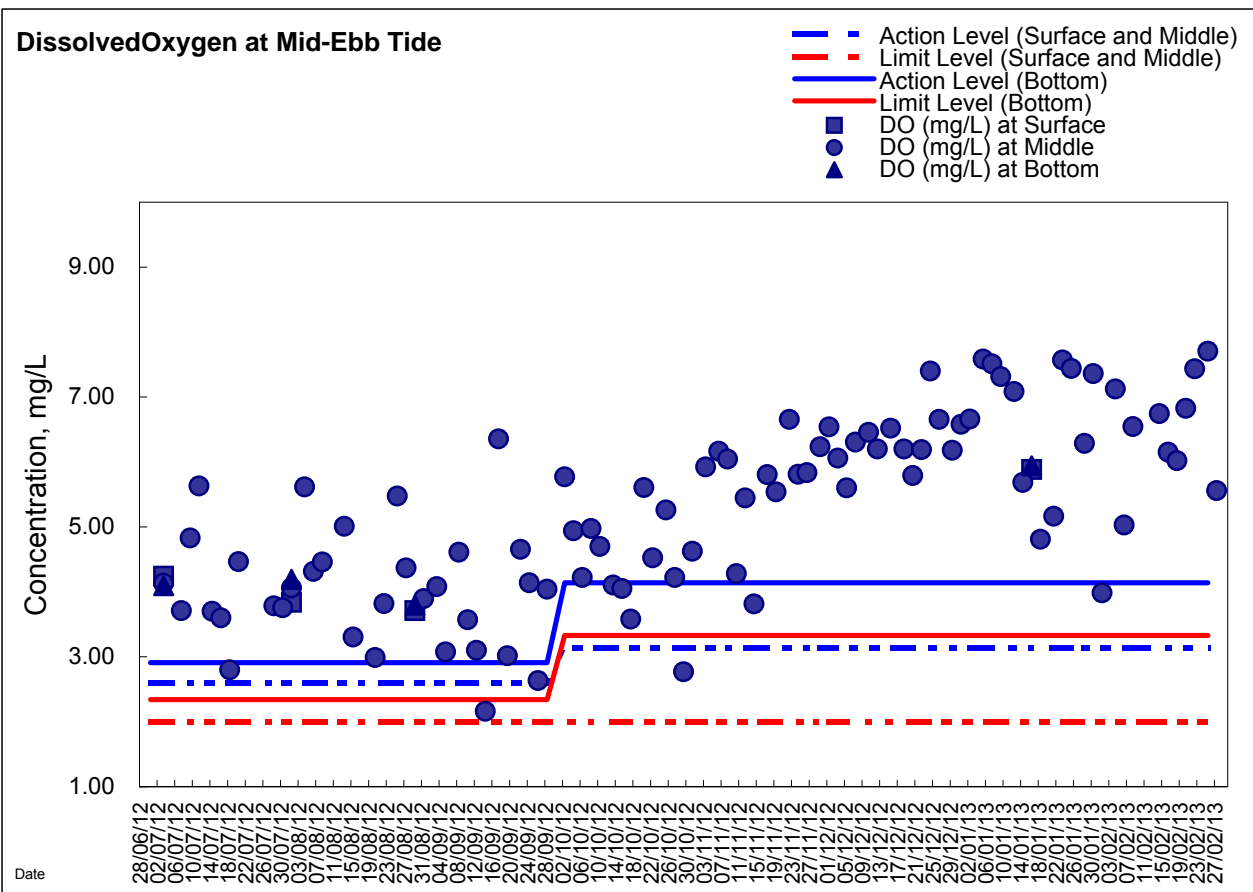
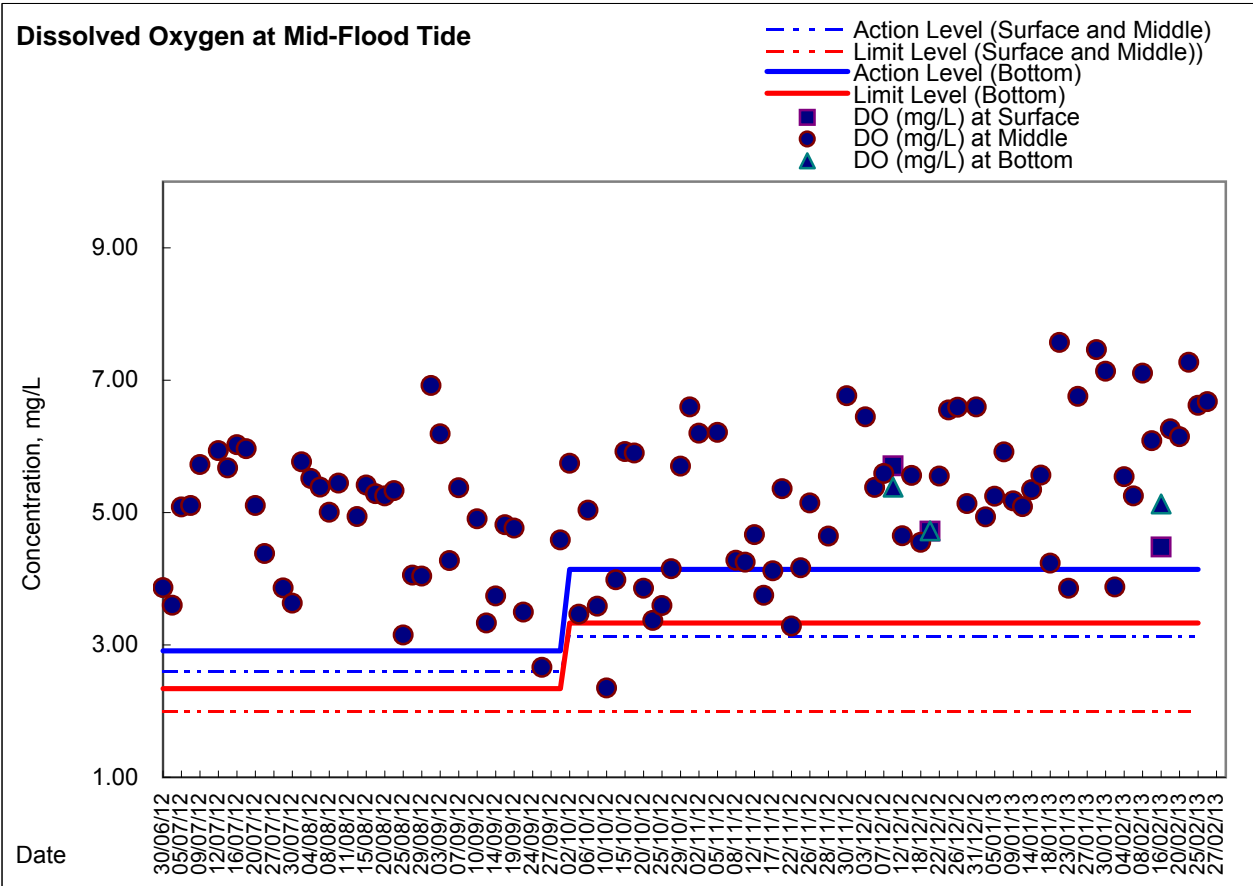




# Graphic Presentation of Water Quality Result of WSD21 - Wan Chai



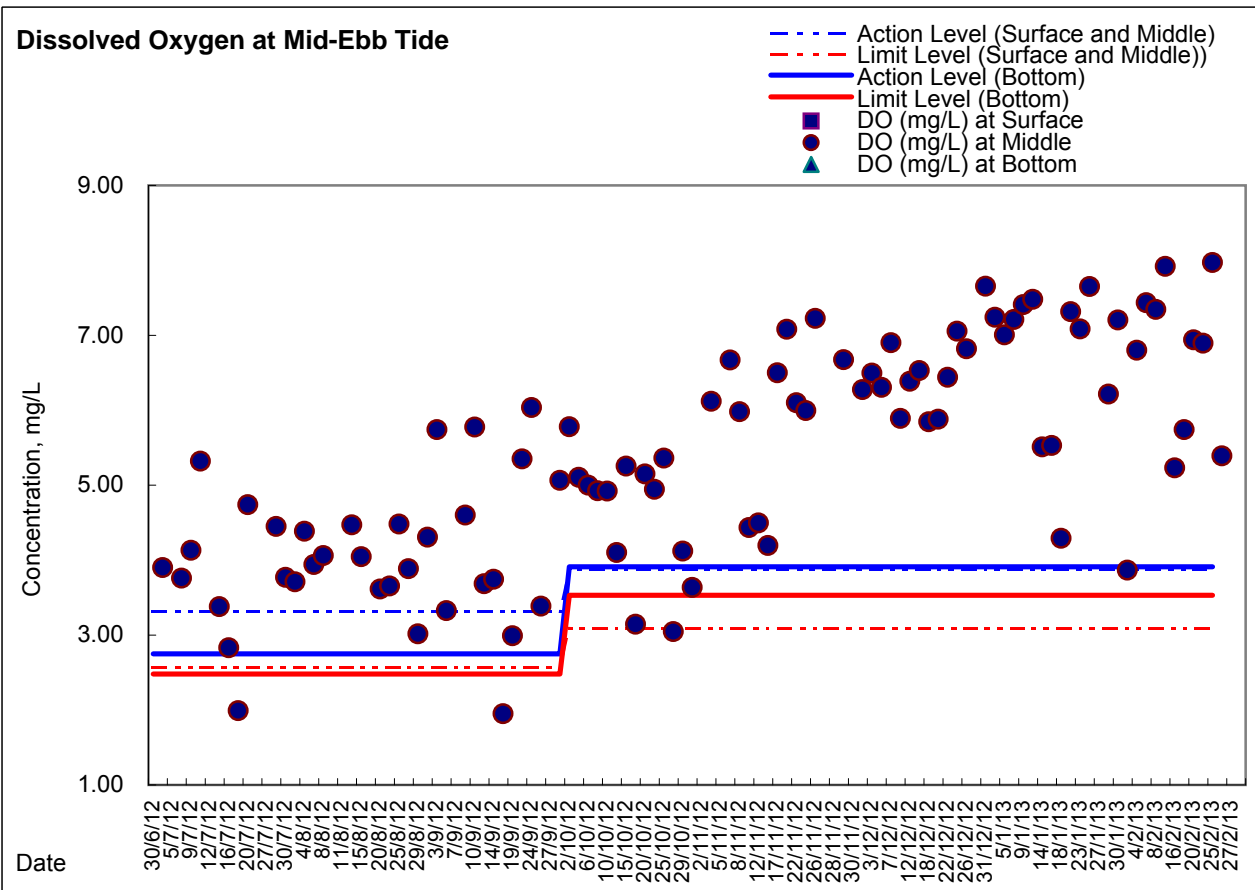
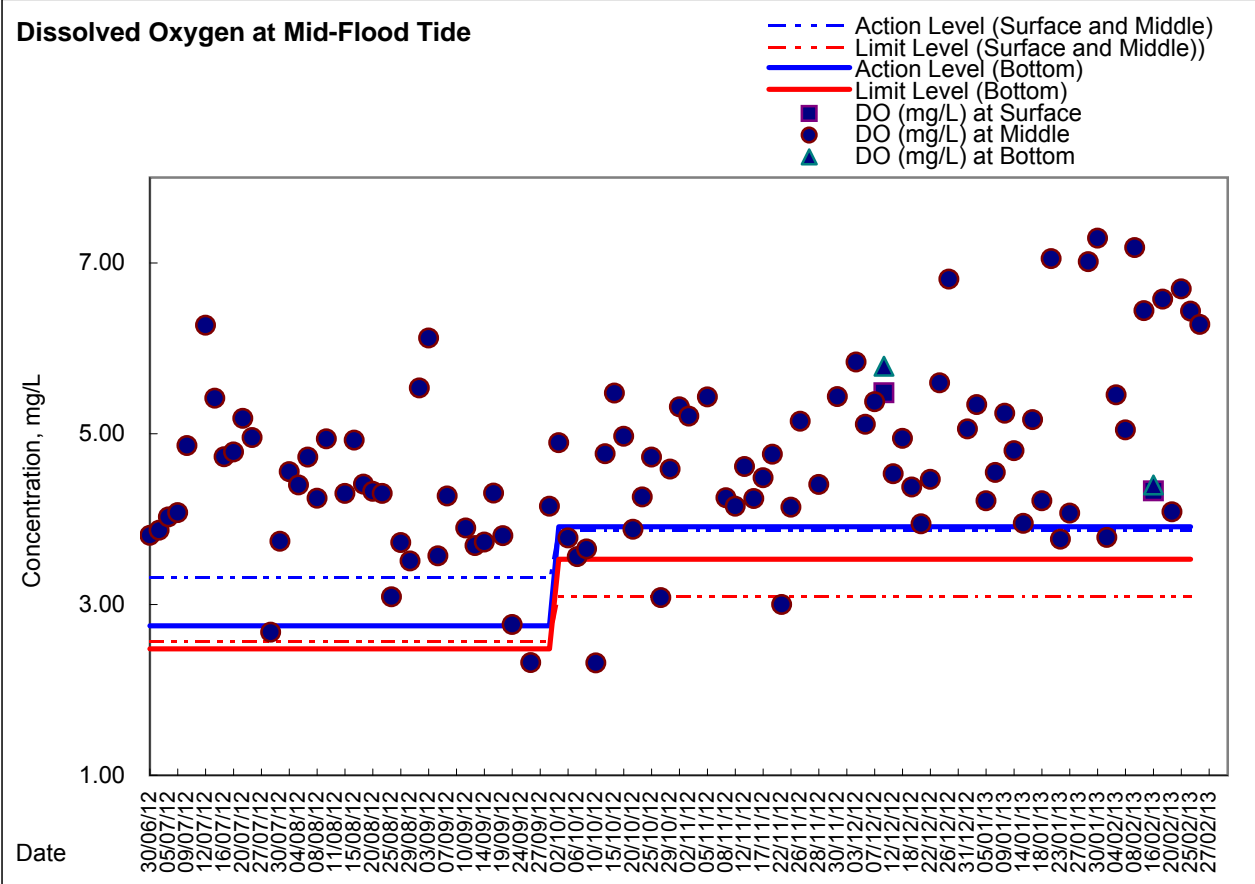
### Graphic Presentation of Enhanced Water Monitoring Results (DO) at C6 - Excelsior Hotel





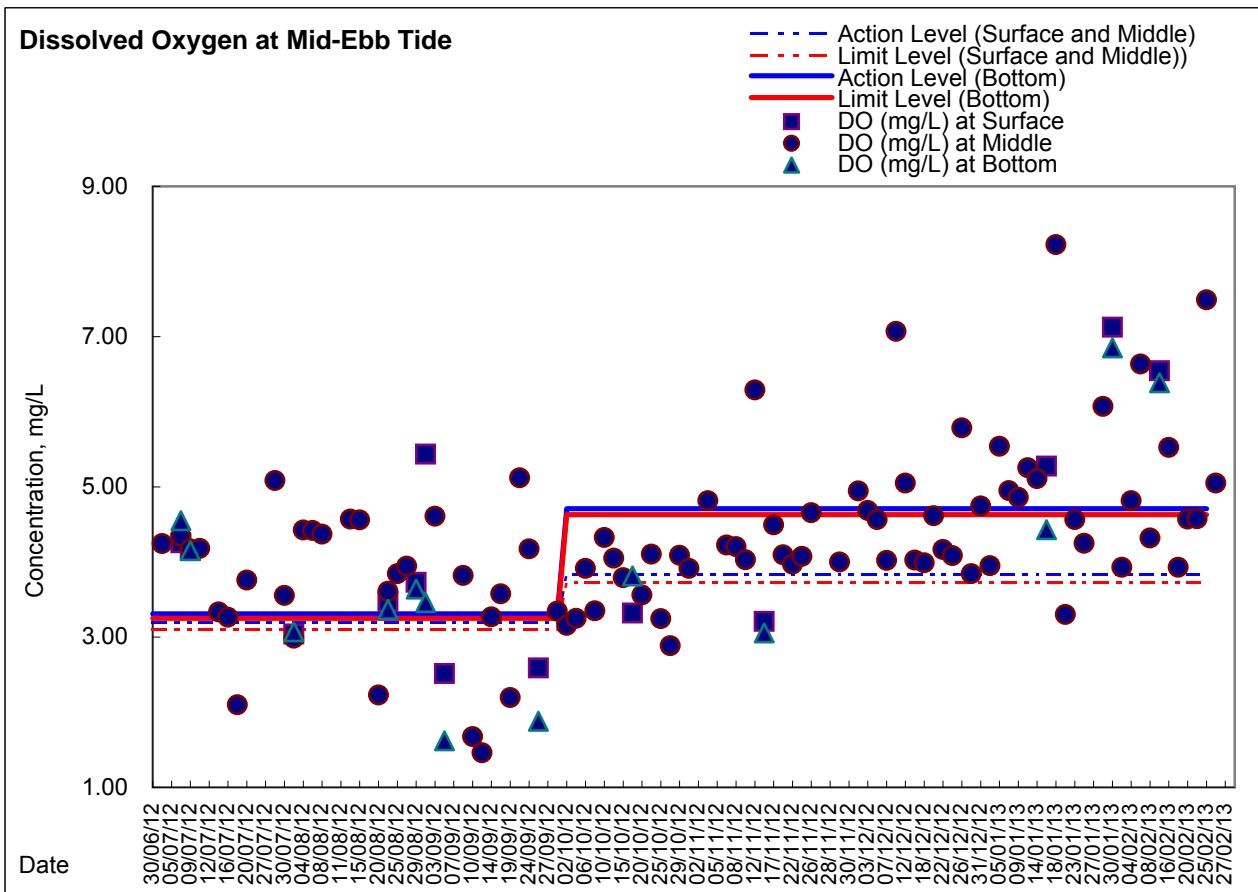
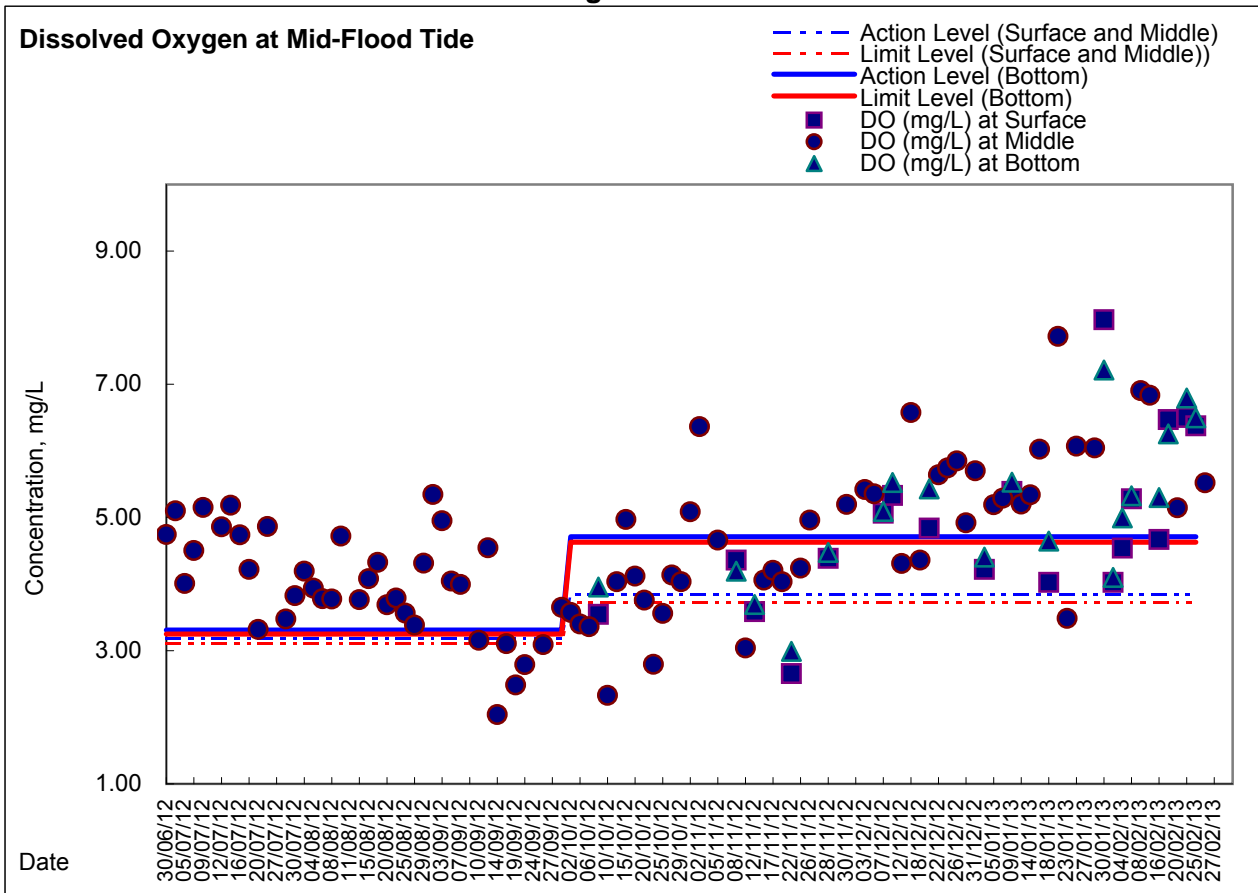


### Graphic Presentation of Enhanced Water Monitoring Results (DO) at C7 - Windsor House



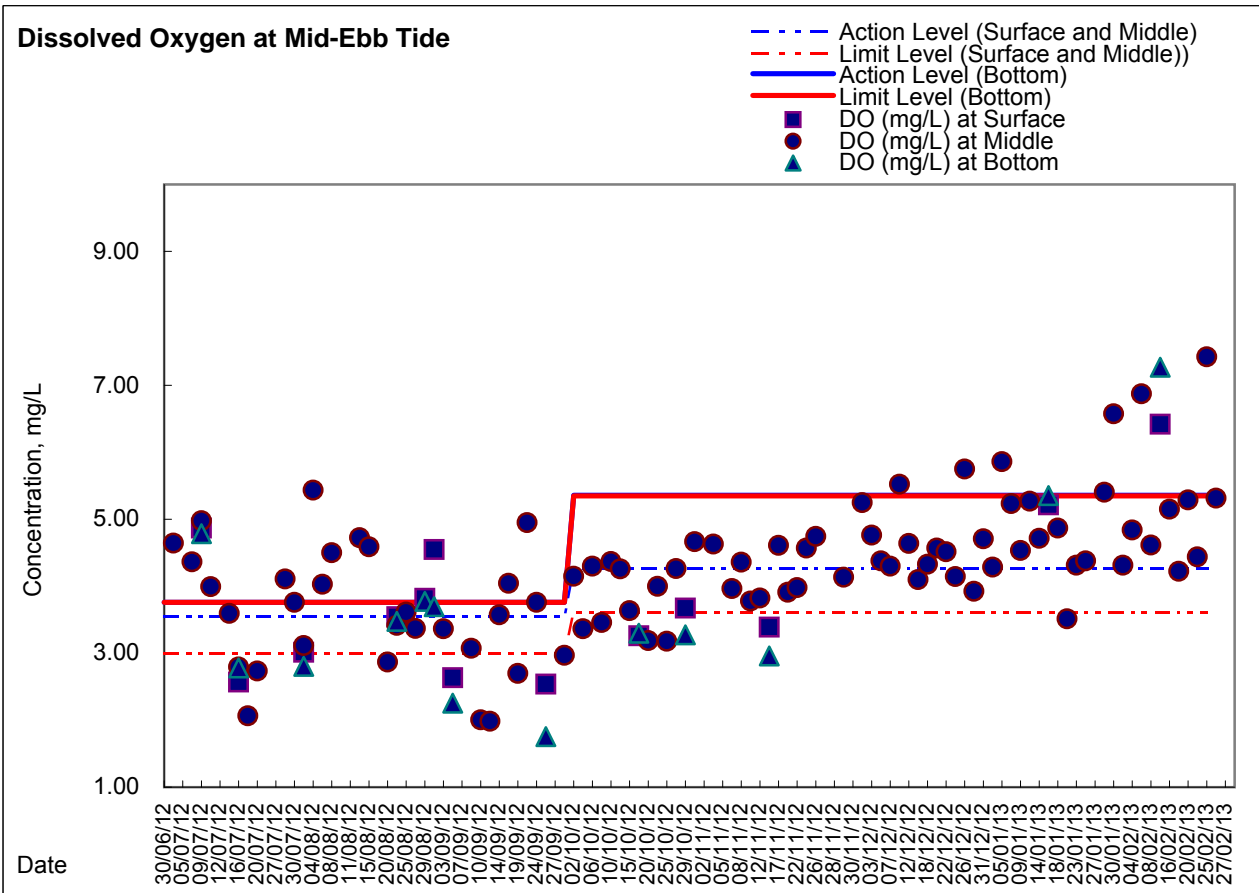
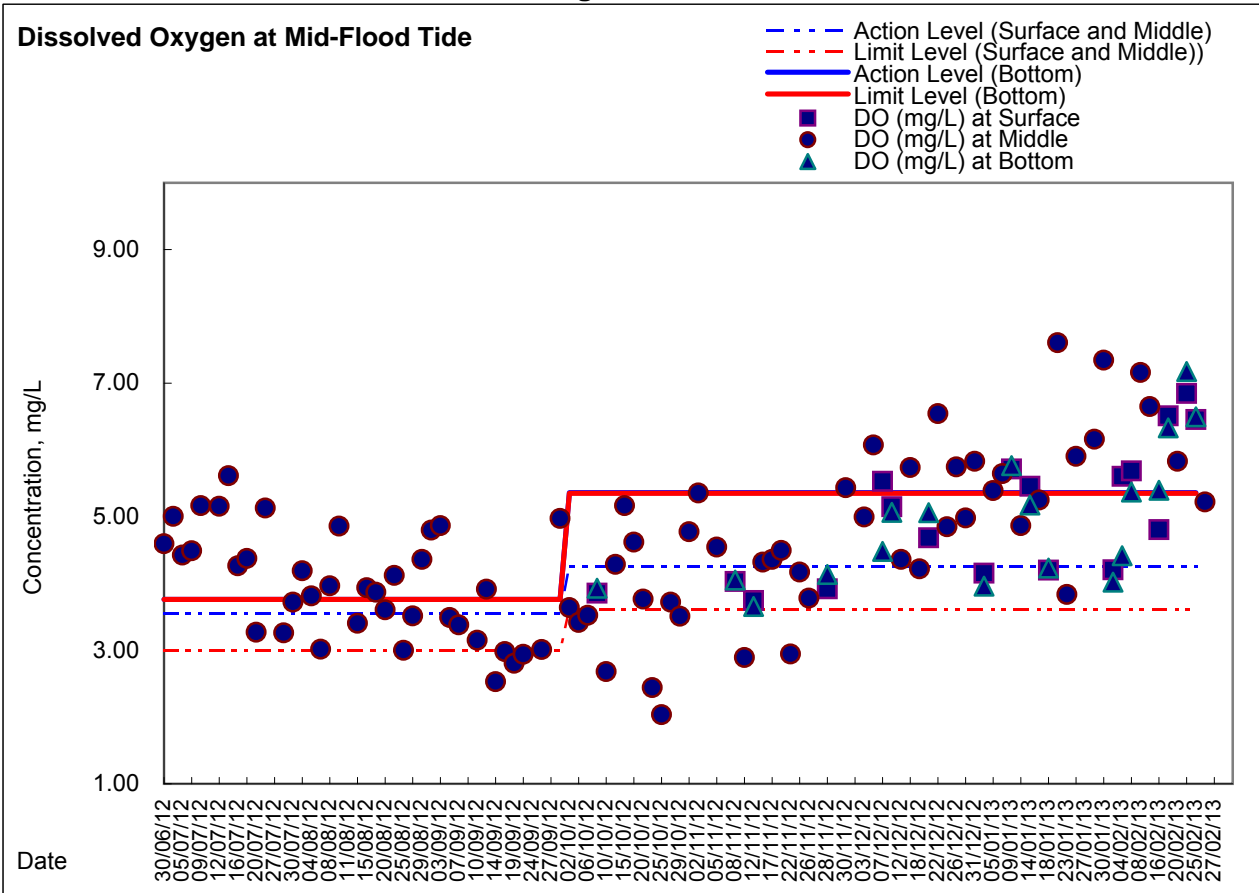


### Graphic Presentation of Enhanced Water Monitoring Results (DO) at Ex-WPCWA SW - South-western corners of ex-Public Cargo Works Area





**Graphic Presentation of Enhanced Water Monitoring Results (DO) at Ex-WPCWA SE  
- South-eastern corners of ex-Public Cargo Works Area**





***Appendix 4.3a***

***Additional Dissolved Oxygen Monitoring Results***





**Water Monitoring Result at Station B  
Mid-Flood Tide**

Location: Station B

Coordinate: 835572E, 815961N

Date	Time	Weather Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO		
			m		°C			-			ppt		%		mg/L				
					Value	Average	Value	Average	Value	Average	Value	Average	Value	Average					
28-Nov-12	15:56	Cloudy	Surface	1.0	22.50	22.50	22.50	8.07	8.07	8.07	33.00	33.00	33.00	77.1	77.2	77.2	5.53	5.54	5.54
	15:57		Middle	5.5	22.50	22.50	22.50	7.98	7.98	7.98	32.98	32.98	32.98	76.3	76.4	76.4	5.46	5.48	5.47
	15:58		Bottom	10.0	22.50	22.50	22.50	8.01	8.01	8.01	32.97	32.97	32.97	75.6	76.5	76.1	5.41	5.48	5.45
5-Dec-12	12:36	Cloudy	Surface	1.0	21.90	21.90	21.90	7.88	7.88	7.88	32.80	32.80	32.80	66.4	66.6	66.5	4.80	4.84	4.82
	12:37		Middle	5.5	21.90	21.90	21.90	7.90	7.90	7.90	32.96	32.96	32.96	65.0	65.2	65.1	4.71	4.72	4.72
	12:38		Bottom	10.0	21.90	21.90	21.90	7.89	7.89	7.89	33.00	33.00	33.00	63.0	63.1	63.1	4.56	4.56	4.56
12-Dec-12	14:52	Fine	Surface	1.0	20.90	20.90	20.90	8.07	8.07	8.07	33.17	33.17	33.17	81.1	80.5	80.8	5.96	5.92	5.94
	14:54		Middle	5.0	20.90	20.90	20.90	7.99	7.99	7.99	33.18	33.18	33.18	78.5	78.5	78.5	5.75	5.76	5.76
	14:56		Bottom	9.0	20.90	20.90	20.90	7.95	7.95	7.95	33.18	33.18	33.18	78.3	78.7	78.5	5.76	5.79	5.78
20-Dec-12	12:07	Fine	Surface	1.0	20.10	20.10	20.10	7.92	7.92	7.92	33.07	33.07	33.07	76.6	76.6	76.6	5.71	5.71	5.71
	12:08		Middle	5.0	20.20	20.20	20.20	7.92	7.92	7.92	33.18	33.18	33.18	78.3	79.0	78.7	5.85	5.85	5.85
	12:09		Bottom	9.0	20.20	20.20	20.20	7.91	7.91	7.91	33.21	33.21	33.21	77.8	76.5	77.2	5.80	5.73	5.77



**Water Monitoring Result at Station C  
Mid-Flood Tide**

Location: Station C

Coordinate: 835659E, 816271N

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO		
			m		°C			-			ppt		%			mg/L			
					Value	Average		Value	Average		Value	Average	Value	Average	Value	Average			
28-Nov-12	15:50	Cloudy	Surface	1.0	22.30	22.30	22.30	8.11	8.11	8.11	32.95	32.95	32.95	75.6	75.8	75.7	5.44	5.45	5.45
	15:51		Middle	7.0	22.50	22.50	22.50	7.97	7.97	7.97	32.96	32.96	32.96	75.6	75.4	75.5	5.42	5.40	5.41
	15:52		Bottom	13.0	22.40	22.40	22.40	8.01	8.01	8.01	32.87	32.87	32.87	74.7	73.4	74.1	5.35	5.26	5.31
5-Dec-12	12:27	Cloudy	Surface	1.0	21.90	21.90	21.90	7.90	7.90	7.90	32.80	32.80	32.80	68.0	68.4	68.2	4.93	4.95	4.94
	12:29		Middle	7.0	21.90	21.90	21.90	7.93	7.93	7.93	32.99	32.99	32.99	67.2	67.3	67.3	4.86	4.87	4.87
	12:30		Bottom	13.0	22.00	22.00	22.00	7.94	7.94	7.94	32.98	32.98	32.98	67.2	67.4	67.3	4.86	4.88	4.87
12-Dec-12	-	Fine	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15:00		Middle	1.5	21.00	21.00	21.00	7.89	7.89	7.89	32.50	32.50	32.50	66.2	67.1	66.7	4.86	4.95	4.91
	-		Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-Dec-12	12:00	Fine	Surface	1.0	20.30	20.30	20.30	7.95	7.95	7.95	33.20	33.20	33.20	81.4	81.6	81.5	6.06	6.07	6.07
	12:02		Middle	7.0	20.10	20.10	20.10	7.97	7.97	7.97	33.27	33.27	33.27	82.1	82.3	82.2	6.12	6.14	6.13
	12:04		Bottom	13.0	20.10	20.10	20.10	8.00	8.00	8.00	33.33	33.33	33.33	83.8	83.6	83.7	6.25	6.23	6.24



**Water Monitoring Result at Station A  
Mid-Ebb Tide**

Location: Station A

Coordinate: 835468E, 815857N

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO		
			m		°C			-			ppt			%			mg/L		
					Value	Average		Value	Average		Value	Average		Value	Average		Value	Average	
29-Nov-12	10:25	Cloudy	Surface	1.0	22.70	22.70	22.70	7.97	7.97	7.97	32.98	32.98	32.98	66.1	65.8	66.0	4.72	4.69	4.71
	-		Middle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	10:26		Bottom	5.0	22.60	22.60	22.60	7.92	7.92	7.92	33.03	33.03	33.03	67.3	67.0	67.2	4.81	4.79	4.80
5-Dec-12	3:05	Cloudy	Surface	1.0	21.80	21.80	21.80	7.98	7.98	7.98	32.87	32.87	32.87	60.6	60.1	60.4	4.38	4.34	4.36
	-		Middle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3:07		Bottom	5.0	21.80	21.80	21.80	7.95	7.95	7.95	33.05	33.05	33.05	63.2	63.0	63.1	4.56	4.55	4.56
12-Dec-12	0:18	Fine	Surface	1.0	20.80	20.80	20.80	7.91	7.91	7.91	33.29	33.29	33.29	73.3	73.0	73.2	5.40	5.38	5.39
	0:19		Middle	3.5	20.80	20.80	20.80	7.92	7.92	7.92	33.30	33.30	33.30	67.6	67.3	67.5	4.98	4.96	4.97
	0:20		Bottom	6.0	20.80	20.80	20.80	7.93	7.93	7.93	33.31	33.31	33.31	68.2	68.0	68.1	5.02	5.01	5.02
20-Dec-12	4:13	Cloudy	Surface	1.0	20.50	20.40	20.45	7.84	7.84	7.84	33.08	33.09	33.09	69.7	69.5	69.6	5.18	5.17	5.18
	4:14		Middle	3.5	20.40	2.40	11.40	7.88	7.88	7.88	33.20	33.22	33.21	72.2	71.6	71.9	5.37	5.34	5.36
	4:15		Bottom	6.0	20.30	20.30	20.30	7.90	7.90	7.90	33.24	33.23	33.24	68.1	67.9	68.0	5.06	5.05	5.06





**Water Monitoring Result at Station B  
Mid-Ebb Tide**

Location: Station B

Coordinate: 835572E, 815961N

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO		
			m		°C			-			ppt		%		mg/L				
					Value	Average		Value	Average		Value	Average	Value	Average	Value	Average			
29-Nov-12	10:19	Cloudy	Surface	1.0	22.70	22.70	22.70	7.91	7.91	7.91	32.90	32.90	32.90	69.0	68.8	68.9	4.92	4.90	4.91
	10:21		Middle	4.5	22.60	22.60	22.60	7.93	7.93	7.93	33.05	33.05	33.05	71.0	69.9	70.5	5.07	5.06	5.07
	10:22		Bottom	8.0	22.60	22.60	22.60	7.90	7.90	7.90	33.07	33.07	33.07	71.8	71.5	71.7	5.12	5.09	5.11
5-Dec-12	2:59	Cloudy	Surface	1.0	21.90	21.90	21.90	7.93	7.93	7.93	33.00	32.99	33.00	64.0	63.7	63.9	4.62	4.60	4.61
	3:00		Middle	4.5	21.90	21.90	21.90	7.89	7.89	7.89	33.07	33.06	33.07	65.3	65.1	65.2	4.72	4.71	4.72
	3:02		Bottom	8.0	21.90	21.90	21.90	8.04	8.04	8.04	33.08	33.08	33.08	69.7	69.5	69.6	5.04	5.03	5.04
12-Dec-12	0:13	Fine	Surface	1.0	20.70	20.70	20.70	7.90	7.90	7.90	33.30	33.30	33.30	80.3	80.0	80.2	5.91	5.89	5.90
	0:14		Middle	4.5	20.70	20.70	20.70	7.96	7.96	7.96	33.34	33.34	33.34	80.6	80.4	80.5	5.95	5.94	5.95
	0:15		Bottom	8.0	20.60	20.60	20.60	7.94	7.94	7.94	33.34	33.34	33.34	80.6	80.5	80.6	5.93	5.93	5.93
20-Dec-12	4:20	Cloudy	Surface	1.0	20.30	20.30	20.30	7.91	7.90	7.91	33.16	33.12	33.14	74.7	74.4	74.6	5.55	5.52	5.54
	4:21		Middle	5.0	20.30	20.30	20.30	7.87	7.89	7.88	33.28	33.26	33.27	77.6	78.1	77.9	5.77	5.82	5.80
	4:22		Bottom	9.0	20.20	20.20	20.20	7.99	7.99	7.99	33.17	33.15	33.16	64.4	64.0	64.2	4.78	4.76	4.77



**Water Monitoring Result at Station C  
Mid-Ebb Tide**

Location: Station C

Coordinate: 835659E, 816271N

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO		
			m		°C			-			ppt		%		mg/L				
					Value	Average		Value	Average		Value	Average	Value	Average	Value	Average			
29-Nov-12	10:07	Cloudy	Surface	1.0	22.60	22.60	22.60	7.95	7.95	7.95	33.04	33.02	33.03	72.5	72.3	72.4	5.18	5.17	5.18
	10:08		Middle	7.0	22.60	22.60	22.60	7.94	7.94	7.94	33.05	33.05	33.05	73.0	73.7	73.4	5.21	5.19	5.20
	10:10		Bottom	13.0	22.50	22.50	22.50	7.95	7.95	7.95	33.07	33.07	33.07	73.2	73.1	73.2	5.23	5.23	5.23
5-Dec-12	2:54	Cloudy	Surface	1.0	21.90	21.90	21.90	7.93	7.93	7.93	33.01	33.01	33.01	70.3	69.8	70.1	5.09	5.04	5.07
	2:56		Middle	6.5	21.90	21.90	21.90	7.88	7.88	7.88	33.02	33.02	33.02	69.7	69.3	69.5	5.03	5.00	5.02
	2:58		Bottom	12.0	21.80	21.80	21.80	8.06	8.06	8.06	33.04	33.04	33.04	69.9	69.8	69.9	5.04	5.04	5.04
12-Dec-12	0:01	Fine	Surface	1.0	20.70	20.70	20.70	7.94	7.94	7.94	33.22	33.22	33.22	80.7	80.5	80.6	5.95	5.94	5.95
	0:03		Middle	6.5	20.80	20.80	20.80	7.95	7.95	7.95	33.27	33.27	33.27	79.0	78.8	78.9	5.78	5.77	5.78
	0:04		Bottom	12.0	20.80	20.80	20.80	7.91	7.91	7.91	33.30	33.30	33.30	80.7	80.3	80.5	5.94	5.91	5.93
20-Dec-12	4:29	Cloudy	Surface	1.0	20.30	20.30	20.30	8.29	8.16	8.23	33.20	33.18	33.19	79.7	79.3	79.5	5.93	5.90	5.92
	4:30		Middle	8.0	20.20	20.20	20.20	8.04	8.03	8.04	33.36	33.33	33.35	82.5	82.3	82.4	6.14	6.13	6.14
	4:31		Bottom	15.0	20.20	20.20	20.20	8.00	7.99	8.00	33.39	33.41	33.40	82.1	82.2	82.2	6.11	6.12	6.12





**Water Monitoring Result at Station B  
Mid-Flood Tide**

Location: Station B

Coordinate: 835572E, 815961N

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO		
					°C			-			ppt			%			mg/L		
			m	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average		
28-Dec-12	16:25	Fine	Surface	1.0	19.70	19.70	19.70	7.95	7.95	7.95	33.10	33.10	33.10	78.6	78.7	78.65	5.90	5.92	5.91
	16:26		Middle	5.0	19.60	19.60	19.60	7.93	7.93	7.93	33.23	33.23	33.23	76.2	76.4	76.30	5.73	5.75	5.74
	16:27		Bottom	9.0	19.60	19.60	19.60	7.96	7.96	7.96	33.23	33.23	33.23	75.4	75.6	75.50	5.69	5.70	5.70
2-Jan-13	9:57	Fine	Surface	1.0	18.60	18.60	18.60	7.91	7.91	7.91	33.11	33.11	33.11	62.5	62.3	62.40	4.80	4.79	4.80
	9:59		Middle	5.0	18.70	18.70	18.70	7.91	7.91	7.91	33.29	33.29	33.29	67.5	63.3	65.40	5.14	4.84	4.99
	10:01		Bottom	9.0	19.00	19.00	19.00	7.91	7.91	7.91	33.33	33.33	33.33	65.7	63.6	64.65	4.95	4.84	4.90
9-Jan-13	15:08	Fine	Surface	1.0	18.60	18.60	18.60	7.98	7.98	7.98	33.03	33.03	33.03	85.7	84.9	85.30	6.59	6.52	6.56
	15:10		Middle	5.5	18.40	18.40	18.40	8.00	8.00	8.00	33.07	33.07	33.07	85.8	85.4	85.60	6.61	6.60	6.61
	15:12		Bottom	10.0	18.20	18.20	18.20	8.06	8.06	8.06	33.12	33.12	33.12	86.7	86.4	86.55	6.71	6.69	6.70
16-Jan-13	10:06	Fine	Surface	1.0	17.70	17.70	17.70	7.93	7.93	7.93	32.54	32.54	32.54	79.7	79.4	79.55	6.25	6.22	6.24
	10:07		Middle	5.0	17.70	17.70	17.70	7.96	7.96	7.96	32.63	32.63	32.63	79.1	78.8	78.95	6.20	6.18	6.19
	10:08		Bottom	9.0	17.60	17.60	17.60	7.97	7.97	7.97	32.64	32.64	32.64	78.7	78.4	78.55	6.17	6.14	6.16
23-Jan-13	10:47	Fine	Surface	1.0	18.10	18.10	18.10	8.57	8.57	8.57	31.83	31.83	31.83	58.9	59.1	59.00	4.60	4.62	4.61
	10:48		Middle	5.0	18.00	18.00	18.00	8.57	8.57	8.57	31.33	31.33	31.33	59.9	60.2	60.05	4.69	4.71	4.70
	10:49		Bottom	9.0	17.30	17.80	17.55	8.57	8.57	8.57	31.36	31.36	31.36	60.7	60.3	60.50	4.71	4.73	4.72



**Water Monitoring Result at Station C  
Mid-Flood Tide**

Location: Station C

Coordinate: 835659E, 816271N

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO		
					°C			-			ppt			%			mg/L		
			m	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average		
28-Dec-12	16:20	Fine	Surface	1.0	19.80	19.80	19.80	7.92	7.92	7.92	33.16	33.16	33.16	78.8	78.7	78.75	5.91	5.91	5.91
	16:21		Middle	6.5	19.80	19.80	19.80	7.94	7.94	7.94	33.25	33.25	33.25	79.8	79.1	79.45	5.99	5.94	5.97
	16:22		Bottom	12.0	19.80	19.80	19.80	7.93	7.93	7.93	33.24	33.24	33.24	79.2	79.0	79.10	5.94	5.93	5.94
2-Jan-13	-	Fine	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	10:03		Middle	1.5	18.60	18.60	18.60	7.92	7.92	7.92	32.18	32.18	32.18	62.7	61.7	62.20	4.83	4.75	4.79
	-		Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9-Jan-13	15:00	Fine	Surface	1.0	18.30	18.30	18.30	8.01	8.01	8.01	33.07	33.07	33.07	83.2	83.3	83.25	6.42	6.44	6.43
	15:02		Middle	7.0	18.20	18.20	18.20	8.08	8.08	8.08	33.08	33.08	33.08	86.3	86.4	86.35	6.68	6.69	6.69
	15:04		Bottom	13.0	18.20	18.20	18.20	8.08	8.08	8.08	33.09	33.09	33.09	86.6	86.9	86.75	6.70	6.73	6.72
16-Jan-13	10:00	Fine	Surface	1.0	17.50	17.50	17.50	7.95	7.95	7.95	32.52	32.52	32.52	79.2	78.5	78.85	6.22	6.19	6.21
	10:01		Middle	7.0	17.50	17.50	17.50	8.02	8.02	8.02	32.53	32.53	32.53	80.6	80.4	80.50	6.33	6.32	6.33
	10:02		Bottom	12.0	17.50	17.50	17.50	8.01	8.01	8.01	32.54	32.54	32.54	80.2	80.1	80.15	6.31	6.30	6.31
23-Jan-13	10:41	Fine	Surface	1.0	18.00	18.00	18.00	8.67	8.67	8.67	31.80	31.80	31.80	61.3	61.6	61.45	4.79	4.81	4.80
	10:42		Middle	7.0	17.90	17.90	17.90	8.56	8.58	8.57	31.81	31.81	31.81	60.1	60.0	60.05	4.71	4.70	4.71
	10:43		Bottom	13.0	17.90	17.90	17.90	8.58	8.58	8.58	31.86	31.86	31.86	60.0	59.6	59.80	4.70	4.67	4.69



**Water Monitoring Result at Station A  
Mid-Ebb Tide**

Location: Station A

Coordinate: 835468E, 815857N

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO		
			m	°C			-			ppt		%		mg/L					
				Value	Average		Value	Average		Value	Average	Value	Average	Value	Average				
29-Dec-12	0:54	Fine	Surface	1.0	19.60	19.60	19.60	7.86	7.86	7.86	32.61	32.58	32.60	65.3	65.1	65.20	4.90	4.89	4.90
	0:55		Middle	3.0	19.60	19.60	19.60	7.86	7.86	7.86	33.19	33.19	33.19	68.8	68.2	68.50	5.19	5.16	5.18
	0:56		Bottom	5.0	19.60	19.60	19.60	7.80	7.80	7.80	31.09	31.11	31.10	64.1	63.9	64.00	4.83	4.81	4.82
2-Jan-13	-	Fine	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	0:15		Middle	1.5	18.80	18.80	18.80	7.88	7.88	7.88	33.09	33.09	33.09	71.7	71.8	71.75	5.47	5.48	5.48
	-		Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9-Jan-13	0:14	Fine	Surface	1.0	18.20	18.20	18.20	7.96	7.96	7.96	32.07	32.07	32.07	72.7	72.9	72.80	5.65	5.69	5.67
	-		Middle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	0:16		Bottom	3.0	18.20	18.20	18.20	7.90	7.90	7.90	32.08	32.08	32.08	75.1	75.8	75.45	5.84	5.90	5.87
16-Jan-13	-	Fine	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15:51		Middle	1.5	18.00	18.00	18.00	7.95	7.95	7.95	31.99	31.99	31.99	78.5	78.9	78.70	6.12	6.15	6.14
	-		Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23-Jan-13	19:35	Cloudy	Surface	1.0	18.10	18.00	18.05	8.60	8.59	8.60	31.60	31.63	31.62	53.3	53.2	53.25	4.17	4.15	4.16
	-		Middle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19:37		Bottom	5.0	17.80	17.80	17.80	8.56	8.56	8.56	31.85	31.85	31.85	56.1	56.2	56.15	4.40	4.41	4.41



**Water Monitoring Result at Station B  
Mid-Ebb Tide**

Location: Station B

Coordinate: 835572E, 815961N

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO		
			m		°C			-			ppt		%		mg/L				
					Value	Average		Value	Average		Value	Average	Value	Average	Value	Average			
29-Dec-12	0:48	Fine	Surface	1.0	19.60	19.60	19.60	7.87	7.87	7.87	33.16	33.16	33.16	72.3	72.1	72.20	5.45	5.44	5.45
	0:50		Middle	4.5	19.60	19.60	19.60	7.88	7.88	7.88	33.19	33.19	33.19	72.8	72.4	72.60	5.48	5.46	5.47
	0:52		Bottom	8.0	19.50	19.50	19.50	7.89	7.89	7.89	33.20	33.20	33.20	74.6	74.4	74.50	5.63	5.62	5.63
2-Jan-13	0:10	Fine	Surface	1.0	18.70	18.70	18.70	7.94	7.94	7.94	33.10	33.10	33.10	71.0	71.0	71.00	5.50	5.42	5.46
	0:11		Middle	4.5	18.90	18.90	18.90	7.89	7.89	7.89	33.15	33.15	33.15	71.9	71.6	71.75	5.48	5.46	5.47
	0:12		Bottom	8.0	18.90	18.90	18.90	7.91	7.91	7.91	33.17	33.17	33.17	72.9	72.5	72.70	5.56	5.53	5.55
9-Jan-13	0:08	Fine	Surface	1.0	18.20	18.20	18.20	7.95	7.95	7.95	31.56	31.56	31.56	84.5	84.9	84.70	6.60	6.63	6.62
	0:09		Middle	5.0	18.20	18.20	18.20	7.99	7.99	7.99	32.07	32.07	32.07	87.3	86.9	87.10	6.80	6.77	6.79
	0:10		Bottom	9.0	18.20	18.20	18.20	8.00	8.00	8.00	31.64	31.64	31.64	82.0	80.3	81.15	6.42	6.34	6.38
16-Jan-13	15:48	Fine	Surface	1.0	17.20	17.20	17.20	7.94	7.94	7.94	32.11	32.11	32.11	82.1	81.8	81.95	6.38	6.36	6.37
	15:49		Middle	5.0	17.90	17.90	17.90	8.04	8.04	8.04	32.66	32.66	32.66	87.6	80.7	84.15	6.35	6.29	6.32
	15:50		Bottom	9.0	17.40	17.40	17.40	7.96	7.96	7.96	32.66	32.66	32.66	78.9	78.8	78.85	6.15	6.14	6.15
23-Jan-13	19:30	Cloudy	Surface	1.0	17.80	17.80	17.80	8.64	8.64	8.64	31.81	31.80	31.81	60.2	60.0	60.10	4.73	4.71	4.72
	19:31		Middle	5.0	17.60	17.60	17.60	8.67	8.67	8.67	31.83	31.83	31.83	64.9	64.8	64.85	5.11	5.10	5.11
	19:33		Bottom	9.0	17.60	17.60	17.60	8.70	8.70	8.70	31.82	31.84	31.83	65.9	65.9	65.90	5.20	5.20	5.20



**Water Monitoring Result at Station C  
Mid-Ebb Tide**

Location: Station C

Coordinate: 835659E, 816271N

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO		
			m		°C			-			ppt		%		mg/L				
					Value	Average		Value	Average		Value	Average	Value	Average	Value	Average			
29-Dec-12	0:43	Fine	Surface	1.0	19.70	19.70	19.70	8.12	8.10	8.11	33.23	33.23	33.23	80.6	80.4	80.50	6.06	6.04	6.05
	0:45		Middle	7.0	19.70	19.70	19.70	8.04	8.03	8.04	33.24	33.24	33.24	78.5	78.2	78.35	5.89	5.87	5.88
	0:48		Bottom	13.0	19.60	19.60	19.60	7.97	7.97	7.97	33.23	33.23	33.23	77.6	77.1	77.35	5.83	5.80	5.82
2-Jan-13	0:05	Fine	Surface	1.0	18.50	18.50	18.50	7.99	7.99	7.99	33.19	33.19	33.19	75.7	75.5	75.60	5.79	5.77	5.78
	0:06		Middle	6.5	18.80	18.80	18.80	8.01	8.01	8.01	33.21	33.21	33.21	76.4	76.5	76.45	5.84	5.85	5.85
	0:07		Bottom	12.0	18.80	18.80	18.80	7.99	7.99	7.99	33.21	33.21	33.21	77.0	77.1	77.05	5.88	5.90	5.89
9-Jan-13	0:03	Fine	Surface	1.0	18.20	18.20	18.20	7.95	7.95	7.95	32.96	32.96	32.96	84.0	83.7	83.85	6.50	6.48	6.49
	0:05		Middle	7.0	18.70	18.10	18.40	7.99	7.99	7.99	33.13	33.13	33.13	84.3	83.5	83.90	6.48	6.46	6.47
	0:06		Bottom	12.0	18.10	18.10	18.10	7.97	7.97	7.97	33.04	33.04	33.04	83.0	83.1	83.05	6.62	6.63	6.63
16-Jan-13	15:41	Fine	Surface	1.0	18.10	18.10	18.10	7.80	7.80	7.80	32.54	32.54	32.54	82.1	80.8	81.45	6.37	6.26	6.32
	15:42		Middle	6.5	17.60	17.60	17.60	7.92	7.92	7.92	32.65	32.65	32.65	80.5	80.4	80.45	6.28	6.27	6.28
	15:43		Bottom	12.0	17.80	7.80	12.80	7.94	7.94	7.94	32.64	32.64	32.64	80.8	80.6	80.70	6.31	6.29	6.30
23-Jan-13	19:24	Cloudy	Surface	1.0	18.00	18.00	18.00	8.80	8.79	8.80	31.78	31.77	31.78	63.1	63.0	63.05	4.95	4.93	4.94
	19:26		Middle	7.0	17.70	17.70	17.70	8.81	8.83	8.82	31.81	31.80	31.81	65.8	65.7	65.75	5.18	5.17	5.18
	19:29		Bottom	13.0	17.50	17.50	17.50	8.80	8.79	8.80	31.82	31.82	31.82	61.6	60.9	61.25	4.87	4.83	4.85





**Water Monitoring Result at Station A  
Mid-Flood Tide**

Location: Station A

Coordinate: 835468E, 815857N

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO		
					°C			-			ppt			%			mg/L		
			m	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average		
1-Feb-13	9:30	Fine	Surface	1.0	18.00	18.00	18.00	8.59	8.59	8.59	31.14	31.14	31.14	60.5	59.4	59.95	4.74	4.65	4.70
	-		Middle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	9:31		Bottom	4.0	18.00	18.00	18.00	8.58	8.58	8.58	31.16	31.16	31.16	56.9	57.0	56.95	4.42	4.43	4.43
6-Feb-13	14:56	Fine	Surface	1.0	19.40	19.40	19.40	7.93	7.93	7.93	31.16	31.16	31.16	75.8	76.5	76.15	5.79	5.87	5.83
	-		Middle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	15:00		Bottom	4.0	19.10	19.10	19.10	7.95	7.95	7.95	31.64	31.64	31.64	81.3	81.4	81.35	6.23	6.23	6.23
16-Feb-13	10:21	Fine	Surface	1.0	17.90	17.90	17.90	8.05	8.05	8.05	30.89	30.89	30.89	72.1	70.6	71.35	5.62	5.51	5.57
	-		Middle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	10:23		Bottom	4.0	18.40	18.40	18.40	8.15	8.15	8.15	31.73	31.73	31.73	68.8	67.7	68.25	5.34	5.26	5.30
20-Feb-13	9:50	Cloudy	Surface	1.0	18.80	18.80	18.80	7.80	7.80	7.80	33.50	33.50	33.50	62.1	61.5	61.80	4.74	4.70	4.72
	-		Middle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	9:52		Bottom	3.0	18.80	18.80	18.80	7.77	7.77	7.77	33.60	33.60	33.60	62.0	62.4	62.20	4.73	4.77	4.75
27-Feb-13	21:41	Fine	Surface	1.0	19.20	19.20	19.20	7.94	7.94	7.94	33.56	33.56	33.56	87.3	86.7	87.00	6.61	6.55	6.58
	21:42		Middle	3.5	19.10	19.10	19.10	7.95	7.95	7.95	34.13	34.13	34.13	88.6	88.3	88.45	6.70	6.68	6.69
	21:43		Bottom	6.0	19.10	19.10	19.10	7.97	7.97	7.97	34.15	34.15	34.15	80.2	79.9	80.05	6.05	6.04	6.05

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



**Water Monitoring Result at Station B  
Mid-Flood Tide**

Location: Station B

Coordinate: 835572E, 815961N

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO		
					°C			-			ppt			%			mg/L		
			m	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average		
1-Feb-13	9:25	Fine	Surface	1.0	18.00	18.00	18.00	8.60	8.60	8.60	31.20	31.20	31.20	60.2	60.0	60.10	4.73	4.71	4.72
	9:26		Middle	5.0	18.00	18.00	18.00	8.64	8.62	8.63	31.20	31.20	31.20	60.4	60.4	60.40	4.74	4.74	4.74
	9:27		Bottom	9.0	18.00	18.00	18.00	8.60	8.61	8.61	31.20	31.20	31.20	59.8	59.9	59.85	4.69	4.70	4.70
6-Feb-13	14:53	Fine	Surface	1.0	19.50	19.50	19.50	7.94	7.94	7.94	31.52	31.52	31.52	85.2	85.1	85.15	6.49	6.48	6.49
	14:54		Middle	5.0	19.20	19.20	19.20	7.95	7.95	7.95	31.76	31.76	31.76	85.1	85.4	85.25	6.49	6.51	6.50
	14:55		Bottom	9.0	19.20	19.20	19.20	8.03	8.03	8.03	31.77	31.77	31.77	82.6	82.5	82.55	6.31	6.31	6.31
16-Feb-13	10:16	Fine	Surface	1.0	18.10	18.10	18.10	7.43	7.43	7.43	31.72	31.72	31.72	77.0	75.2	76.10	6.00	5.86	5.93
	10:18		Middle	5.0	18.40	18.40	18.40	8.16	8.16	8.16	31.77	31.77	31.77	72.5	71.7	72.10	5.63	5.57	5.60
	10:20		Bottom	9.0	18.40	18.40	18.40	7.94	7.94	7.94	31.75	31.75	31.75	76.3	75.0	75.65	5.93	5.83	5.88
20-Feb-13	9:43	Cloudy	Surface	1.0	18.70	18.70	18.70	7.87	7.87	7.87	34.17	34.17	34.17	71.7	71.4	71.55	5.46	5.44	5.45
	9:45		Middle	5.5	18.90	18.90	18.90	7.84	7.84	7.84	34.19	34.19	34.19	71.8	71.0	71.40	5.47	5.42	5.45
	9:47		Bottom	10.0	19.00	19.00	19.00	7.83	7.83	7.83	34.22	34.22	34.22	72.0	71.8	71.90	5.48	5.47	5.48
27-Feb-13	21:37	Fine	Surface	1.0	19.20	19.20	19.20	7.96	7.96	7.96	34.12	34.12	34.12	88.2	88.0	88.10	6.66	6.65	6.66
	21:38		Middle	5.0	19.10	19.10	19.10	7.93	7.93	7.93	34.14	34.14	34.14	88.1	87.9	88.00	6.65	6.64	6.65
	21:40		Bottom	9.0	19.10	19.10	19.10	7.96	7.96	7.96	34.16	34.16	34.16	86.7	86.4	86.55	6.56	6.53	6.55

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



**Water Monitoring Result at Station C  
Mid-Flood Tide**

Location: Station C

Coordinate: 835659E, 816271N

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO		
					°C			-			ppt			%			mg/L		
			m	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average		
1-Feb-13	9:19	Fine	Surface	1.0	17.90	17.90	17.90	8.78	8.78	8.78	31.19	31.19	31.19	61.8	61.5	61.65	4.86	4.83	4.85
	9:20		Middle	7.0	17.90	17.90	17.90	8.70	8.70	8.70	31.19	31.19	31.19	60.4	60.3	60.35	4.75	4.74	4.75
	9:21		Bottom	13.0	17.90	17.90	17.90	8.69	8.69	8.69	31.19	31.19	31.19	59.8	59.4	59.60	4.70	4.67	4.69
6-Feb-13	14:45	Fine	Surface	1.0	19.20	19.20	19.20	8.04	8.04	8.04	31.77	31.77	31.77	84.5	84.9	84.70	7.10	7.12	7.11
	14:46		Middle	7.0	19.20	19.20	19.20	8.02	8.02	8.02	31.82	31.82	31.82	84.2	84.1	84.15	7.08	7.08	7.08
	14:47		Bottom	13.0	18.80	18.80	18.80	8.00	8.00	8.00	31.84	31.84	31.84	84.6	85.2	84.90	6.50	6.53	6.52
16-Feb-13	10:10	Fine	Surface	1.0	18.20	18.20	18.20	7.61	7.61	7.61	31.72	31.72	31.72	71.3	70.8	71.05	5.56	5.52	5.54
	10:12		Middle	7.0	18.10	18.10	18.10	7.53	7.53	7.53	31.86	31.86	31.86	81.1	79.5	80.30	6.31	6.19	6.25
	10:14		Bottom	13.0	17.90	17.90	17.90	8.25	8.25	8.25	31.78	31.78	31.78	77.4	80.9	79.15	6.06	6.33	6.20
20-Feb-13	9:35	Cloudy	Surface	1.0	18.70	18.70	18.70	7.77	7.77	7.77	34.16	34.16	34.16	74.2	74.8	74.50	5.65	5.70	5.68
	9:37		Middle	6.5	18.60	18.60	18.60	7.81	7.81	7.81	34.23	34.23	34.23	78.1	77.7	77.90	5.85	5.82	5.84
	9:39		Bottom	12.0	18.40	18.40	18.40	7.78	7.78	7.78	34.15	34.15	34.15	73.5	73.3	73.40	5.59	5.58	5.59
27-Feb-13	21:30	Fine	Surface	1.0	19.20	19.20	19.20	7.97	7.96	7.97	34.16	34.16	34.16	86.4	86.1	86.25	6.52	6.50	6.51
	21:31		Middle	7.0	18.90	18.90	18.90	8.05	8.05	8.05	34.25	34.25	34.25	84.9	84.7	84.80	6.43	6.42	6.43
	21:32		Bottom	13.0	18.80	18.80	18.80	8.17	8.17	8.17	34.32	34.32	34.32	84.6	84.0	84.30	6.42	6.41	6.42

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



**Water Monitoring Result at Station A  
Mid-Ebb Tide**

Location: Station A

Coordinate: 835468E, 815857N

Date	Time	Weather Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO			
			m	°C			-			ppt		%		mg/L						
				Value	Average		Value	Average		Value	Average	Value	Average	Value	Average					
1-Feb-13	15:30	Fine	Surface	1.0	18.40	18.40	18.40	8.19	8.19	8.19	30.85	30.85	30.85	57.3	56.9	57.10	4.47	4.44	4.46	
	-		Middle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15:32		Bottom	3.0	18.30	18.30	18.30	8.19	8.19	8.19	30.85	30.85	30.85	54.5	54.1	54.30	4.26	4.24	4.25	
6-Feb-13	23:13	Fine	Surface	1.0	18.90	18.90	18.90	7.61	7.61	7.61	30.73	30.73	30.73	70.9	70.6	70.75	5.38	5.37	5.38	
	-		Middle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	23:15		Bottom	5.0	18.70	18.70	18.70	7.61	7.61	7.61	31.78	31.78	31.78	74.5	73.9	74.20	5.74	5.71	5.73	
16-Feb-13	-	Fine	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	15:07		Middle	1.5	18.50	18.50	18.50	7.86	7.86	7.86	31.02	31.02	31.02	70.9	68.3	69.60	5.50	5.30	5.40	
	-		Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
20-Feb-13	22:47	Cloudy	Surface	1.0	18.40	18.40	18.40	7.88	7.88	7.88	32.26	32.26	32.26	75.2	75.0	75.10	5.79	5.78	5.79	
	-		Middle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	22:49		Bottom	5.0	18.40	18.40	18.40	7.92	7.92	7.92	34.32	34.32	34.32	80.1	79.8	79.95	6.12	6.10	6.11	
27-Feb-13	14:35	Cloudy	Surface	1.0	19.00	19.00	19.00	7.96	7.96	7.96	33.63	33.63	33.63	77.4	77.1	77.25	5.88	5.86	5.87	
	-		Middle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	14:37		Bottom	3.0	19.00	19.00	19.00	7.95	7.95	7.95	33.66	33.66	33.66	77.0	77.1	77.05	5.85	5.86	5.86	

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



**Water Monitoring Result at Station B  
Mid-Ebb Tide**

Location: Station B

Coordinate: 835572E, 815961N

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO		
			m	°C			-			ppt		%		mg/L					
				Value	Average		Value	Average		Value	Average	Value	Average	Value	Average				
1-Feb-13	15:24	Fine	Surface	1.0	18.50	18.50	18.50	8.20	8.20	8.20	31.31	31.31	31.31	61.3	60.5	60.90	4.78	4.72	4.75
	15:26		Middle	5.0	18.30	18.30	18.30	8.22	8.22	8.22	31.35	31.35	31.35	58.9	58.8	58.85	4.61	4.60	4.61
	15:27		Bottom	9.0	18.10	18.10	18.10	8.23	8.23	8.23	31.36	31.36	31.36	58.1	57.8	57.95	4.55	4.53	4.54
6-Feb-13	23:08	Fine	Surface	1.0	18.70	18.70	18.70	7.36	7.36	7.36	31.75	31.75	31.75	81.9	81.7	81.80	6.33	6.32	6.33
	23:10		Middle	4.5	18.70	18.70	18.70	7.40	7.40	7.40	31.78	31.78	31.78	82.7	82.6	82.65	6.38	6.38	6.38
	23:12		Bottom	8.0	18.70	18.70	18.70	7.44	7.44	7.44	31.78	31.78	31.78	82.2	82.0	82.10	6.33	6.32	6.33
16-Feb-13	15:02	Fine	Surface	1.0	18.40	18.40	18.40	7.83	7.83	7.83	31.82	31.82	31.82	78.2	76.9	77.55	6.08	5.97	6.03
	15:04		Middle	5.0	18.20	18.20	18.20	7.83	7.83	7.83	31.91	31.91	31.91	85.6	84.1	84.85	6.65	6.54	6.60
	15:05		Bottom	9.0	18.10	18.10	18.10	7.81	7.81	7.81	31.91	31.91	31.91	84.6	82.0	83.30	6.60	6.39	6.50
20-Feb-13	22:43	Cloudy	Surface	1.0	18.50	18.50	18.50	7.92	7.92	7.92	34.28	34.28	34.28	86.4	86.2	86.30	6.59	6.58	6.59
	22:45		Middle	4.5	18.50	18.50	18.50	7.91	7.91	7.91	34.27	34.27	34.27	84.1	84.0	84.05	6.42	6.41	6.42
	22:47		Bottom	8.0	18.50	18.50	18.50	7.93	7.93	7.93	34.33	34.33	34.33	83.5	83.2	83.35	6.37	6.35	6.36
27-Feb-13	14:29	Cloudy	Surface	1.0	19.10	19.10	19.10	7.97	7.97	7.97	34.18	34.18	34.18	82.4	82.9	82.65	6.23	6.27	6.25
	14:31		Middle	5.5	19.00	19.00	19.00	8.00	8.00	8.00	34.20	34.20	34.20	82.8	82.2	82.50	6.27	6.21	6.24
	14:32		Bottom	10.0	18.70	18.70	18.70	7.99	7.99	7.99	34.23	34.23	34.23	81.7	81.0	81.35	6.20	6.14	6.17

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



**Water Monitoring Result at Station C  
Mid-Ebb Tide**

Location: Station C

Coordinate: 835659E, 816271N

Date	Time	Weather Condition	Sampling Depth	Water Temperature			pH			Salinity			DO Saturation			DO			
				m	°C		-		ppt		%		mg/L						
					Value	Average	Value	Average	Value	Average	Value	Average	Value	Average					
1-Feb-13	15:17	Fine	Surface	1.0	18.40	18.40	18.40	8.21	8.21	8.21	31.30	31.30	31.30	61.8	61.2	61.50	4.82	4.78	4.80
	15:19		Middle	6.5	18.20	18.20	18.20	8.19	8.19	8.19	31.36	31.36	31.36	59.2	59.5	59.35	4.63	4.65	4.64
	15:21		Bottom	12.0	18.10	18.10	18.10	8.18	8.18	8.18	31.38	31.38	31.38	59.8	60.1	59.95	4.69	4.71	4.70
6-Feb-13	23:02	Fine	Surface	1.0	18.80	18.80	18.80	6.91	7.02	6.97	31.79	31.79	31.79	87.2	88.5	87.85	6.74	6.83	6.79
	23:04		Middle	6.5	18.80	18.80	18.80	7.26	7.26	7.26	31.80	31.80	31.80	88.2	88.0	88.10	6.80	6.79	6.80
	23:06		Bottom	12.0	18.80	18.80	18.80	7.35	7.35	7.35	31.80	31.80	31.80	86.0	85.7	85.85	6.62	6.60	6.61
16-Feb-13	14:56	Fine	Surface	1.0	18.40	18.40	18.40	7.87	7.87	7.87	31.89	31.89	31.89	82.3	79.6	80.95	6.38	6.17	6.28
	14:57		Middle	7.0	18.10	18.10	18.10	7.84	7.84	7.84	31.89	31.89	31.89	87.0	85.2	86.10	6.78	6.64	6.71
	14:58		Bottom	13.0	17.90	17.90	17.90	7.83	7.83	7.83	32.05	32.05	32.05	87.3	85.6	86.45	6.83	6.69	6.76
20-Feb-13	22:35	Cloudy	Surface	1.0	18.60	18.60	18.60	8.02	8.02	8.02	34.27	34.27	34.27	85.1	84.8	84.95	6.48	6.46	6.47
	22:36		Middle	7.0	18.60	18.60	18.60	7.97	7.97	7.97	34.26	34.26	34.26	83.8	83.5	83.65	6.40	6.38	6.39
	22:38		Bottom	13.0	18.50	18.50	18.50	8.05	8.05	8.05	34.30	34.30	34.30	83.1	82.8	82.95	6.35	6.33	6.34
27-Feb-13	14:22	Cloudy	Surface	1.0	18.90	18.90	18.90	7.99	7.99	7.99	34.17	34.17	34.17	89.1	88.7	88.90	6.76	6.74	6.75
	14:23		Middle	6.5	18.70	18.70	18.70	8.02	8.02	8.02	34.18	34.18	34.18	88.3	88.1	88.20	6.70	6.69	6.70
	14:25		Bottom	12.0	18.50	18.50	18.50	8.03	8.03	8.03	34.20	34.20	34.20	86.7	85.7	86.20	6.58	6.51	6.55

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

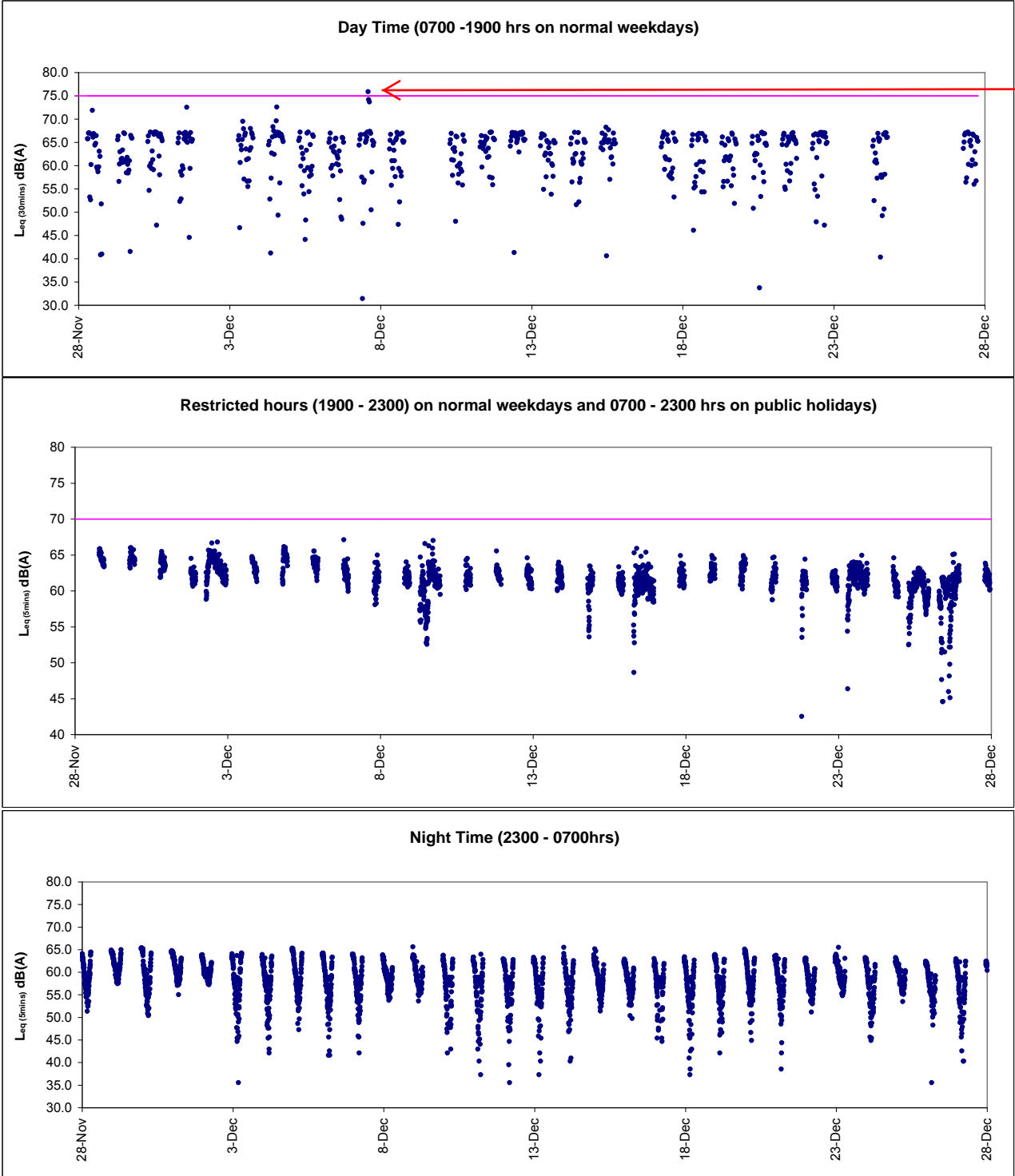


***Appendix 4.4***

***Real-time Noise Monitoring Results and Graphical Presentations***



Graphic Presentation of Real Time Noise Monitoring Result (RTN2a- Hong Kong Electric Centre)

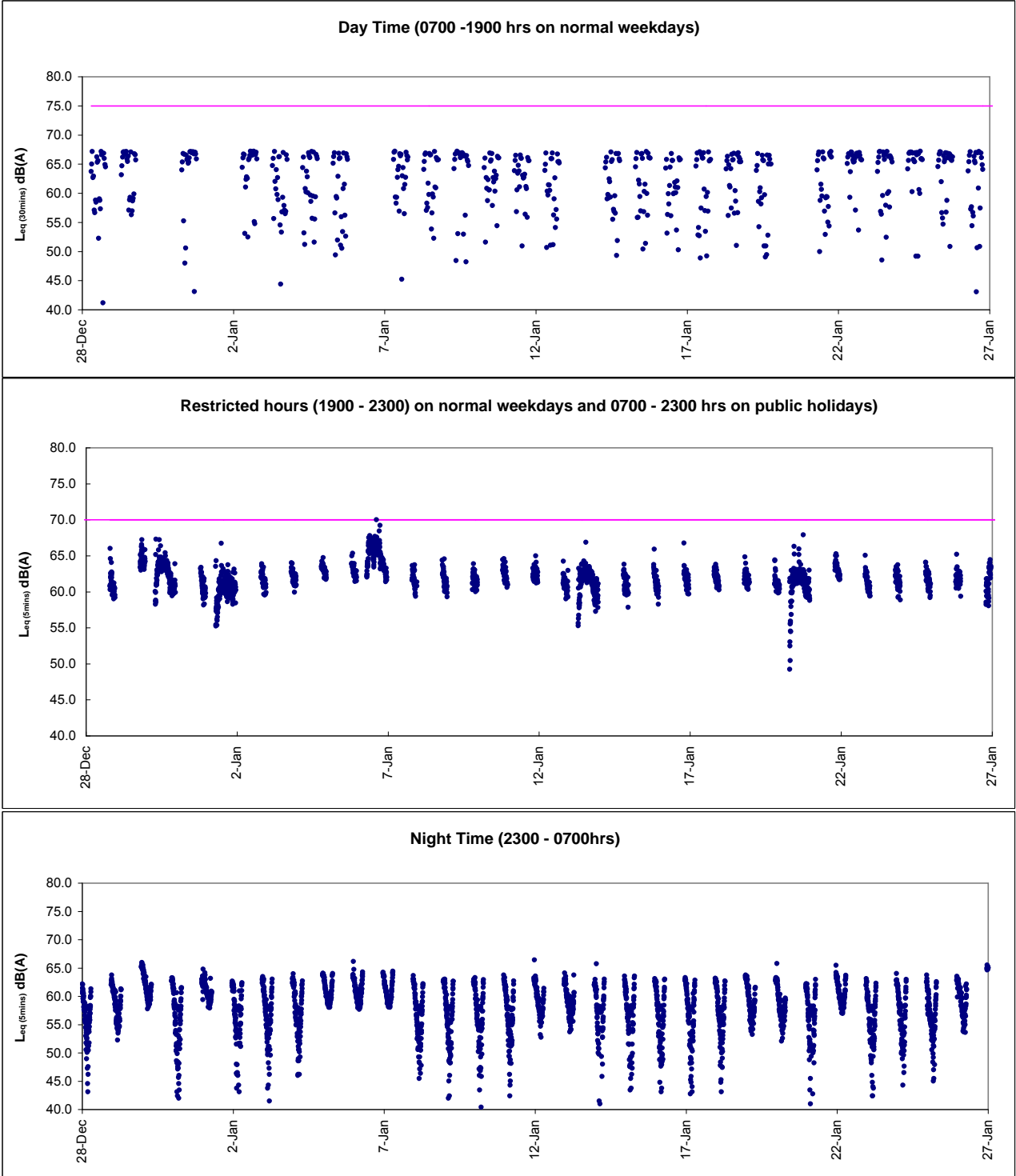


After checking with contractor HY/2009 19, no noisy construction activities were conducted during monitoring. Exceedance was considered to be contributed by the non CWB construction activities at the construction site next to Hong Kong Electric Centre



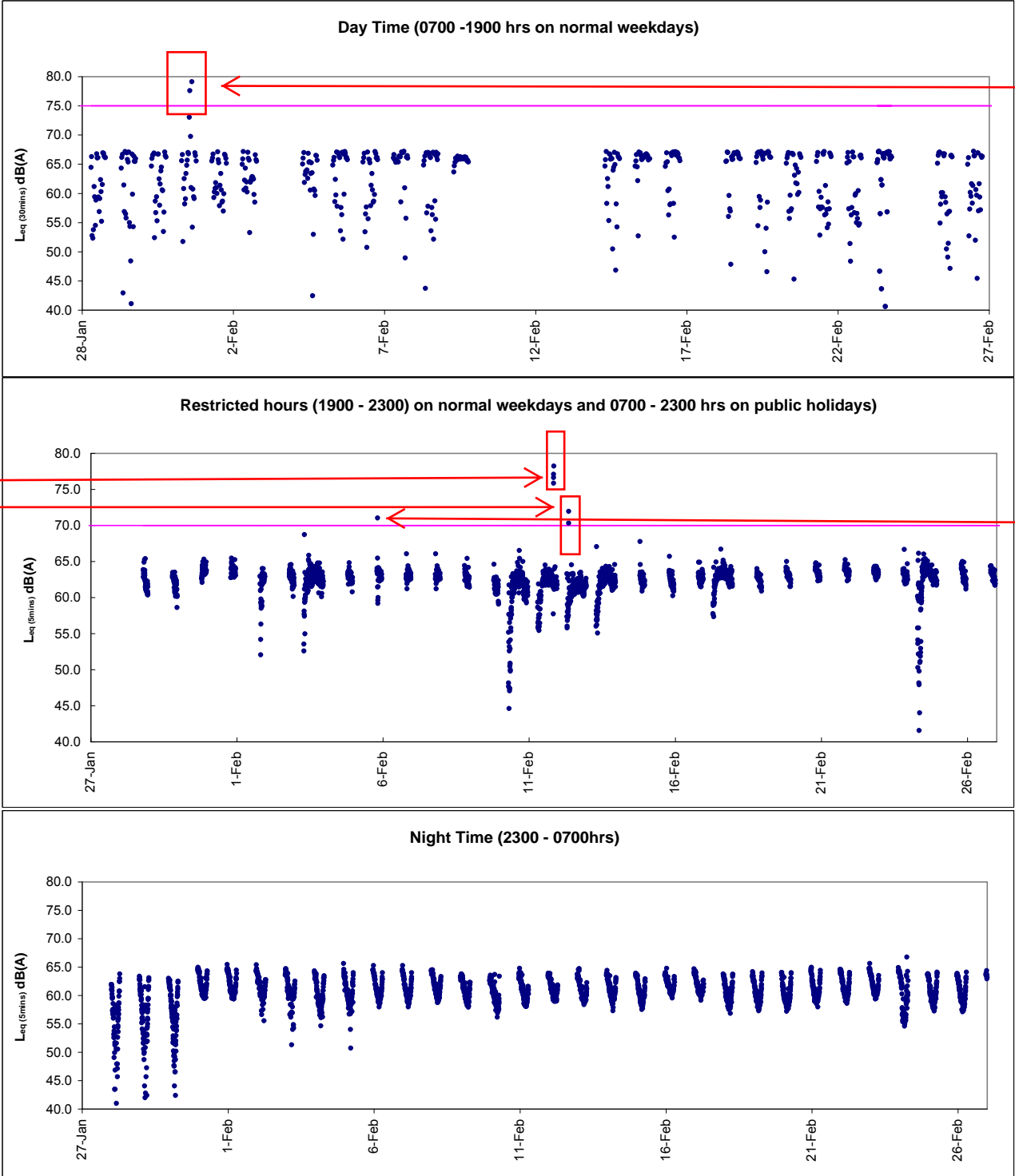


Graphic Presentation of Real Time Noise Monitoring Result (RTN2a- Hong Kong Electric Centre)





Graphic Presentation of Real Time Noise Monitoring Result (RTN2a- Hong Kong Electric Centre)



After checking with contractor HY/2009/19. No construction activities were conducted during the recorded period. Exceedances were contributed by Chinese New year pyrotechnic display.

After checking with contractor HY/2009/19, no noisy construction activities were conducted during the recorded period and the exceedance was non-continuous. Exceedances were considered to be contributed by nearby IEC traffic

After checking with contractor HY/2009/19. No construction activities were conducted during the recorded period. Exceedances were contributed by nearby IEC traffic



***Appendix 5.1***

***Event Action Plans***



Event/Action Plan for Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded	<ol style="list-style-type: none"><li>1. Notify ER, IEC and Contractor;</li><li>2. Carry out investigation;</li><li>3. Report the results of investigation to the IEC, ER and Contractor;</li><li>4. Discuss with the IEC and Contractor on remedial measures required;</li><li>5. Increase monitoring frequency to check mitigation effectiveness.</li></ol> <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"><li>1. Review the investigation results submitted by the ET;</li><li>2. Review the proposed remedial measures by the Contractor and advise the ER accordingly;</li><li>3. Advise the ER on the effectiveness of the proposed remedial measures.</li></ol> <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"><li>1. Confirm receipt of notification of failure in writing;</li><li>2. Notify Contractor;</li><li>3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li><li>4. Supervise the implementation of remedial measures.</li></ol> <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"><li>1. Submit noise mitigation proposals to IEC and ER;</li><li>2. Implement noise mitigation proposals.</li></ol> <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>



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. Identify source and investigate the cause of exceedance; 5. Carry out analysis of Contractor's working procedures; 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
<b>ACTION LEVEL</b>				
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>Inform IEC and ER;</li> <li>Repeat measurement to confirm finding;</li> <li>Increase monitoring frequency to daily.</li> </ol> (The above actions should be taken within 2 working days after the exceedance is identified)	<ol style="list-style-type: none"> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method.</li> </ol> (The above actions should be taken within 2 working days after the exceedance is identified)	<ol style="list-style-type: none"> <li>Notify Contractor.</li> </ol> (The above actions should be taken within 2 working days after the exceedance is identified)	<ol style="list-style-type: none"> <li>Rectify any unacceptable practice;</li> <li>Amend working methods if appropriate.</li> </ol> (The above actions should be taken within 2 working days after the exceedance is identified)
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>Identify source;</li> <li>Inform IEC and ER;</li> <li>Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>Repeat measurements to confirm findings;</li> <li>Increase monitoring frequency to daily;</li> <li>Discuss with IEC and Contractor on remedial actions required;</li> <li>If exceedance continues, arrange meeting with IEC and ER;</li> <li>If exceedance stops, cease additional monitoring.</li> </ol> (The above actions should be taken within 2 working days after the exceedance is identified)	<ol style="list-style-type: none"> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> <li>Discuss with ET and Contractor on possible remedial measures;</li> <li>Advise the ET on the effectiveness of the proposed remedial measures;</li> <li>Supervise Implementation of remedial measures.</li> </ol> (The above actions should be taken within 2 working days after the exceedance is identified)	<ol style="list-style-type: none"> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>Ensure remedial measures properly implemented.</li> </ol> (The above actions should be taken within 2 working days after the exceedance is identified)	<ol style="list-style-type: none"> <li>Submit proposals for remedial to ER within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Amend proposal if appropriate.</li> </ol> (The above actions should be taken within 2 working days after the exceedance is identified)
<b>LIMIT LEVEL</b>				
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>Inform ER, Contractor and EPD;</li> <li>Repeat measurement to confirm finding;</li> <li>Increase monitoring frequency to daily;</li> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.</li> </ol> (The above actions should be taken within 2 working days after the exceedance is identified)	<ol style="list-style-type: none"> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> <li>Discuss with ET and Contractor on possible remedial measures;</li> <li>Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>Supervise implementation of remedial measures.</li> </ol> (The above actions should be taken within 2 working days after the exceedance is identified)	<ol style="list-style-type: none"> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>Ensure remedial measures properly implemented.</li> </ol> (The above actions should be taken within 2 working days after the exceedance is identified)	<ol style="list-style-type: none"> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Amend proposal if appropriate.</li> </ol> (The above actions should be taken within 2 working days after the exceedance is identified)
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>Notify IEC, ER, Contractor and EPD;</li> <li>Identify source;</li> <li>Repeat measurement to confirm findings;</li> <li>Increase monitoring frequency to daily;</li> <li>Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>Arrange meeting with IEC and ER to discuss the remedial actions to be taken;</li> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</li> <li>If exceedance stops, cease additional monitoring.</li> </ol> (The above actions should be taken within 2 working days after the exceedance is identified)	<ol style="list-style-type: none"> <li>Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>Ensure remedial measures properly implemented;</li> <li>If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</li> </ol> (The above actions should be taken within 2 working days after the exceedance is identified)	<ol style="list-style-type: none"> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Resubmit proposals if problem still not under control;</li> <li>Stop the relevant portion of works as determined by the ER until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)</li> </ol>



**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	<p>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)</p>	<p>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)</p>	<p>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)</p>	<p>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)</p>
Limit level being exceeded by more than one consecutive sampling days	<p>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)</p>	<p>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)</p>	<p>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)</p>	<p>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 3 working 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)</p>





***Appendix 6.1***

***Complaints 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).	<ol style="list-style-type: none"><li>1) A valid Construction Noise Permit no. GW-RS0119-10 was granted from EPD since 18<sup>th</sup> Feb. 2010 for the dredging works which carry out at area for North Point Reclamation.</li><li>2) Officer from Marine Department, Police and EPD's officer attended the scene for inspection and investigation.</li><li>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.</li><li>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.</li><li>5) No further complaints were received from Mr. Tsang in the reporting month. The complaint is considered closed.</li></ol>	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).	<ol style="list-style-type: none"><li>1) A valid Construction Noise Permit no. GW-RS0119-10 was granted from EPD since 18<sup>th</sup> 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.</li><li>2) Officer from Marine Department, Police and EPD's officer attended the scene for inspection and investigation.</li><li>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.</li><li>4) No further complaints were received in the reporting month. The complaint is considered closed.</li></ol>	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.	<ol style="list-style-type: none"><li>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.</li><li>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.</li><li>3) No further complaints were received in the reporting month. The complaint is considered closed.</li></ol>	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.	<ol style="list-style-type: none"><li>1) Contractor for HY/2009/11 was granted valid Construction Noise Permit no. GW-RS0371-10 for their dredging works.</li><li>2) There was only 1 grab dredger operated by Contractor within NPR project site area for dredging works.</li><li>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.</li><li>4) It is considered as invalid from the EP and CNP point of view.</li></ol>	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.	<ol style="list-style-type: none"><li>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.</li><li>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.</li><li>3) It is considered as invalid complaint. No further complaints were received in the reporting month. The complaint is considered closed.</li></ol>	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)	<ol style="list-style-type: none"><li>1) Contractor for HY/2009/11 has 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.</li><li>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.</li><li>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.</li></ol>	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	<ol style="list-style-type: none"><li>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.</li><li>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.</li><li>3) It is considered as invalid complaint. No further complaints were received in the reporting month. The complaint is considered closed.</li></ol>	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	<ol style="list-style-type: none"><li>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.</li><li>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.</li><li>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.</li></ol>	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	<ol style="list-style-type: none"><li>1) ET confirmed the following information with resident site staff on the complaint:<ul style="list-style-type: none"><li>• It was referred to the filling operation at North Point</li></ul></li></ol>	Closed



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		Garden by ICC (ICC case: 1-266039336)		<p>filling operation was louder than the traffic noise &amp; 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;</p> <p>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.</p>	<p>Reclamation of Central Wan Chai Bypass site area instead of part of Wanchai Development Phase II;</p> <ul style="list-style-type: none"> <li>• 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;</li> <li>• Flood light on the control mast of derrick barge have no lighting shields for the prevention of glare of flood lights;</li> <li>• No starting work on 7 Dec 2010 at 0630hours.</li> </ul> <p>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;</p> <p>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;</p> <p>4) The absence of the lighting shields at flood light results in visual glare to the complainant at night-time.</p> <p>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;</p> <p>6) No further complaint was received after implementation of proposed measures</p>	
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.	<p>1) The concerned stockpile was a working stockpile under Contract HY/209/15 and was covered at night time after work.</p> <p>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.</p> <p>3) It is considered invalid but preventive actions can be taken because the stockpile is relatively large and easily visible by complainant.</p> <p>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</p> <p>5) The concern of mosquitoes breeding is out the scope of EM&amp;A, the follow-up action is not reported in this monthly EM&amp;A report.</p>	Closed



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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.	<ol style="list-style-type: none"><li>1) According to the RSS's record, there was no construction works undertaken under the EP-356/2009 during the concern time period.</li><li>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.</li><li>3) It is considered as invalid complaint under this Project.</li></ol>	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	<ol style="list-style-type: none"><li>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.</li><li>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.</li><li>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.</li><li>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.</li><li>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.</li></ol>	Closed



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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.	<ol style="list-style-type: none"><li>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</li><li>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.</li><li>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.</li><li>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.</li></ol>	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.	<ol style="list-style-type: none"><li>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.</li><li>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.</li><li>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</li></ol>	Closed



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					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.	<ol style="list-style-type: none"> <li>1) It was referred by AECOM to ET on 28 July 2011</li> <li>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.</li> <li>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.</li> <li>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.</li> <li>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.</li> </ol>	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	<ol style="list-style-type: none"> <li>1) It was referred by AECOM to ET on 8 August 2011</li> <li>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</li> <li>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.</li> <li>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.</li> </ol>	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	<ol style="list-style-type: none"> <li>1) It was referred by AECOM to ET on 28 July 2011</li> <li>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.</li> <li>3) No noise exceedance was recorded at construction noise</li> </ol>	Closed





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				Central-Wanchai Bypass at noon rather than in morning at 7am.	<p>monitoring station at Victoria Centre on 25 July and 4 August 2011 during daytime while breaking and excavation works were undertaken during monitoring.</p> <p>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.</p>	
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	<p>1) It was referred by AECOM to ET on 28 July 2011</p> <p>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.</p> <p>3) As a mitigation measure to minimize the noise nuisance in the vicinity of the residents, rock breaking activities will be started at 8am.</p>	Closed
	08/08/2011				<p>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.</p> <p>5) Highways contacted the complainant on 15 August 2011 that the noisy rock breaking operation had been completed.</p> <p><i>Remarks: There will be counted as two complaints in this complaint log.</i></p>	
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.	<p>1) It was referred by AECOM to ET on 17 August 2011.</p> <p>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.</p> <p>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.</p> <p>4) Contractors were advised to relocate the loose materials</p>	Closed



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					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.	<ol style="list-style-type: none"> <li>1) Confirmed with the Resident Site Staff that the construction works were referred to the Contractor HK/2009/01.</li> <li>2) The Excavator mounted breaker at Convention Avenue and Drilling rig at HKCEC1 reclamation area were the dominant construction noise source during this period.</li> <li>3) The drilling rig at HKCEC1 reclamation area and excavator mounted breaker at Convention Avenue were then temporary suspended after received the complaint.</li> <li>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.</li> <li>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.</li> <li>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.</li> </ol>	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.	<ol style="list-style-type: none"> <li>1) It was referred by AECOM to ET on 29 August 2011. Confirmed with the Resident Site Staff that the               <ul style="list-style-type: none"> <li>• construction works were referred to the Contractors HY/2009/11 and HY/2009/19.</li> <li>• The pump is located on the site area of HY/2009/19</li> <li>• 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 exclude the outfall.</li> <li>• An ad hoc inspection of the effectiveness of garbage defender was conducted with RSS (CWB project</li> </ul> </li> </ol>	Closed



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					<p>team), contractor of HY/200911 and HY/2009/19 and ICon 29 August 2011. Inspection report of it was submitted to RSS on 19 September 2011.</p> <ul style="list-style-type: none"> <li>• Daily cleaning near the water intake was conducted twice a day by contractor HY/2009/19.</li> <li>• 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</li> </ul> <p>2) According to the complaint letter from Cayley Property, the outcomes of the preventive measures were not complying with their expectation.</p> <p>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.</p> <p>4) All daily cleaning actions had been taken by contractor to minimize floating refuse inside the construction site.</p> <p>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.</p> <p>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.</p> <p>7) Contractors have fulfilled the requirement of site cleanliness and no exceedance was recorded during Water Quality Monitoring. It is considered 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</p>	
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)	<p>1) RSS notified ET to carry out investigation on 17 October 2011.</p> <p>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 re-provision works along the Harbour Road. The plants including the excavator have been checked before using</p>	Closed



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					<p>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.</p> <p>3) After receiving the complaint, the excavator was then removal off-site for checking and maintenance works on 17 October 2011.</p> <p>4) Contractor was reminded to enhance regular checking and maintenance to all plants at site.</p> <p>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.</p>	
111104	04/11/2011	Mr. Liu from LCSO 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.	<p>1) ET confirmed with the Resident Site Staff that</p> <ul style="list-style-type: none"><li>• 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.</li><li>• 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.</li></ul> <p>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.</p>	Waiting RSS respond
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	<p>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</p>	Keep in view for three months from the date of complaint received



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					<p>CNP was checked by the police officer.</p> <p>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.</p> <p>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.</p> <p>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. Furthermore, Construction Noise Permit should be checked and in place for the construction works during restricted hour</p> <p>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.</p>	
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.	<p>1) RSS notified ET on 5 April 2012.</p> <p>2) ET confirmed with the Resident Site Staff that no piling works were performed during the concerned period.</p> <p>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.</p> <p>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</p>	Closed



Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
					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.	
120820	20/8/2012	Mr.Ho via hotline 1823	The exit of Causeway Bay typhoon Shelter and lighthouse	A complaint regarding turbid appearance in water quality generated from dredging operation at the exit of CBTS and lighthouse from two barges respectively in construction sites of CBTS on 18 and 19 August 2012 between 3:00 and 10:00pm. The complainant requested a follow-up and reply from relevant department.	<ol style="list-style-type: none"><li>1) RSS notified ET on 21 August 2012</li><li>2) ET confirmed with the Resident Site Staff that seawall blocks removal at north of TS1 and removal of rock armour at tip of Eastern Breakwater for HY/2009/15 were conducted during the concerned period on 18 August 2012, and seawall blocks removal at north of TS1 during the concerned period on 19 August 2012.</li><li>3) After reviewing the results of water monitoring at C7 on 17 and 20 August 2012, no exceedance was recorded and the water quality parameters were all below action level. Site investigation for HY/2009/15 was conducted on 21 August 2012. The investigation found that inadequate silt curtain for protecting trimming work at northern side of TS1, impermeable barrier were observed inadequate to protect the removed seawall location for trimming and dredging at TS1 and inadequate silt curtain were observed for protecting trimming work at breakwater at TS1. Reviewing the photo records of the concerned areas provided by RSS and investigations by RSS, it was found that the silt curtains around the concerned areas of northern TS1 and Eastern Breakwater were inadequate, and the silt curtains provided at both ends of the derrick barge were not fully enclosed. Also, after work, the silt curtains were not properly maintained to surround the affected work areas, causing silt water leakage into the Victoria Harbour. RSS confirmed that seawall blocks removal at north of TS1 and removal of amour rocks at tip of Eastern Breakwater for HY/2009/15 were conducted during the concerned period on 18 August 2012, and seawall blocks removal at north of TS1 during the concerned period on 19 August 2012.</li><li>4) HyD made a reply to the complainant on 23 August 2012 by phone. HyD replied that there would be on-going activities in the north side of TS1 and the end tip of Eastern Breakwater included filling and rock removal works. HyD explained to the complainant that the Contractor has deployed silt curtain to safeguard the water quality in the vicinity, but the silt curtain deployment</li></ol>	Closed



Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
					requires further improvement. RSS has immediately urged the Contractor to implement mitigation measures and also stepped up supervision on Contractor's work. RSS would continue to work with the Contractor on the effectiveness of the environmental mitigation measures implemented on site, and the Contractor would take into account of ET and IEC's recommendations to enhance the environmental mitigation measures. No further complaint was received after the response.	



***Appendix 7.1***

***Construction Programme of Individual Contracts***



Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float	2011			
							Sep	Oct	Nov	Dec
<b>Reclamation in NPR3 ver.9.5 2011_11_21</b>		115	23	21-Jul-11 A	19-Dec-11	-39				
<b>Landside</b>		115	23	05-Aug-11 A	19-Dec-11	-39				
	Installation Seawall Blocks to B6 and B7	55	0	13-Aug-11 A	18-Oct-11 A					
	Construct the Concrete Coping at B6 and B7	82	0	13-Aug-11 A	07-Nov-11 A					
	Laying Geotextile & Filter Material	86	0	05-Aug-11 A	14-Nov-11 A					
	Construct Open Channel U under IEC	33	0	23-Sep-11 A	30-Oct-11 A					
	Construct Open Channel U outside IEC	32	20	30-Sep-11 A	15-Dec-11	-36				
	Construct the Drainage Pipeline at West of Open Channel U	34	0	30-Sep-11 A	31-Oct-11 A					
	Construct the Drainage Pipeline at East of Open Channel U	28	17	01-Nov-11 A	15-Dec-11	-31				
	Unloading Sorted Public Fill behind new seawall	53	0	15-Aug-11 A	20-Nov-11 A					
	Reclamation	98	23	13-Aug-11 A	19-Dec-11	-39				
<b>Seaside</b>		100	23	21-Jul-11 A	19-Dec-11	-39				
	Construction of Outlet Pipe from City Garden	54	20	12-Oct-11 A	19-Dec-11	-34				
	Construction of B8	13	13	15-Nov-11 A	09-Dec-11	-31				

█ Actual Work    
 █ Critical Remaining Work    
 ▼ Summary  
█ Remaining Work    
 ◆ Milestone

Contract No. HK/2009/01

Contract Title : Wan Chai Development Phase II - Central - Wan Chai Bypass at HKCEC

**Working Programme for Marine Works (Dredging and Backfilling)**

ACTIVITY	START	FINISH	2010												2011												2012												2013											
			Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
<b><u>Submissions before Works Commencement</u></b>																																																		
Submit silt curtain deployment plan	31/3/10	31/3/10	◆																																															
Submit silt screen deployment plan	31/3/10	31/3/10	◆																																															
Submit measures to mitigate noise impact	31/3/10	31/3/10	◆																																															
<b><u>Cross Harbour Watermains from WCN to TST (DP6)</u></b>																																																		
Trench dredging for marine watermains installation	29/4/10	28/10/10				■																																												
Backfilling for watermain	28/1/11	14/12/11												■																																				
<b><u>Reclamation Works at HKCEC Water Channel (DP3)</u></b>																																																		
Dredging at HKCEC Water Channel (Western Part)	1/6/10	1/8/10			■																																													
Backfilling to +3.5mPD (Western Part)	17/8/10	6/2/11				■																																												
Dredging at HKCEC Water Channel (Middle Part)	2/8/10	6/1/11				■																																												
Backfilling to +3.5mPD (Middle Part)	21/2/11	1/6/11												■																																				
Dredging at HKCEC Water Channel (Eastern Part)	1/12/12	31/12/12																												■																				
Backfilling to +3.5mPD (Eastern Part)	16/1/13	30/4/13																														■																		

**Dredging & Reclamation Works Programme Summary  
(based on Initial Works Programme Rev. 0)**

ID	Task Name	Duration	Start	2010 2011 2012 2013 2014 2015																							
				Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
1	<b>HK/2009/02-Marine &amp; Reclamation Works</b>	<b>2008 d</b>	<b>Thu 28/1/10</b>	[Summary bar from Q4 2009 to Q4 2015]																							
2	Contract Commencement	0 d	Thu 28/1/10	[Milestone diamond at start of Q4 2009]																							
3	<b>General</b>	<b>1879 d</b>	<b>Mon 22/2/10</b>	[Summary bar from Q1 2010 to Q4 2015]																							
4	Submission & obtain approval for marine GI	21 d	Mon 22/2/10	[Task bar in Q1 2010]																							
5	Stage 1 Marine GI for reclamation	30 d	Mon 15/3/10	[Task bar in Q1 2010]																							
6	Engineer's Design review for Dredging of WCR1, WCR2 & WCR4	30 d	Mon 22/3/10	[Task bar in Q1 2010]																							
7	Relocation of New Star Ferry Pier	0 d	Tue 18/3/14	[Milestone diamond at start of Q2 2014]																							
8	Demolition of Existing Star Ferry Pier	100 d	Tue 18/3/14	[Task bar in Q2 2014]																							
9	Stage 2 Marine GI for Reclamation	14 d	Tue 18/3/14	[Task bar in Q2 2014]																							
10	Engineer's Design review for Dredging of WCR3	21 d	Tue 25/3/14	[Task bar in Q2 2014]																							
11	Complete Diversion of Hung Hing Road Traffic Back to Original	20 d	Fri 6/2/15	[Task bar in Q1 2015]																							
12	Excavate & remove top of d-wall for permanent seawall construction	50 d	Wed 25/2/15	[Task bar in Q1 2015]																							
13	<b>Submarine Outfall</b>	<b>500 d</b>	<b>Tue 21/9/10</b>	[Summary bar from Q3 2010 to Q4 2011]																							
14	Dredging, Laying and Backfilling of Submarine Outfall Pipe at Sea	500 d	Tue 21/9/10	[Task bar from Q3 2010 to Q4 2011]																							
15	<b>Phase 1 - WCR1</b>	<b>158 d</b>	<b>Wed 21/4/10</b>	[Summary bar from Q1 2010 to Q2 2010]																							
16	Mobilization of plants	1 d	Wed 21/4/10	[Task bar in Q1 2010]																							
17	Seabed dredging	63 d	Wed 21/4/10	[Task bar in Q1 2010]																							
18	Bedding Filling and Permanent seawall (precast cassion)	60 d	Tue 22/6/10	[Task bar in Q2 2010]																							
19	Bulk reclamation	37 d	Fri 20/8/10	[Task bar in Q2 2010]																							
20	<b>Phase 2 - WCR2</b>	<b>149 d</b>	<b>Thu 1/3/12</b>	[Summary bar from Q3 2011 to Q4 2011]																							
21	Mobilization of plants	1 d	Thu 1/3/12	[Task bar in Q3 2011]																							
22	Temp seawall and Seabed dredging	77 d	Thu 1/3/12	[Task bar in Q3 2011]																							
23	Bulk reclamation	73 d	Wed 16/5/12	[Task bar in Q4 2011]																							
24	<b>Phase 3 - TWCR4 &amp; WCR4</b>	<b>98 d</b>	<b>Sat 28/4/12</b>	[Summary bar from Q4 2011 to Q1 2012]																							
25	Mobilization of plants	1 d	Sat 28/4/12	[Task bar in Q4 2011]																							
26	Temp Seawall and Seabed dredging	75 d	Sat 28/4/12	[Task bar in Q4 2011]																							
27	Bulk & temp reclamation	24 d	Wed 11/7/12	[Task bar in Q1 2012]																							
28	<b>Phase 4 - WCR3</b>	<b>294 d</b>	<b>Tue 18/3/14</b>	[Summary bar from Q2 2014 to Q4 2014]																							
29	Mobilization of plants	1 d	Tue 18/3/14	[Task bar in Q2 2014]																							
30	Seabed dredging for Permanent Seawall	112 d	Tue 18/3/14	[Task bar in Q2 2014]																							
31	Backfill and permanent seawall (precast cassion)	108 d	Tue 8/7/14	[Task bar in Q3 2014]																							
32	Bulk reclamation	74 d	Fri 24/10/14	[Task bar in Q4 2014]																							
33	<b>Phase 5 - Construct Permanent Seawall Blocks along curved coastline &amp; Remove TWCR4</b>	<b>105 d</b>	<b>Wed 15/4/15</b>	[Summary bar from Q1 2015 to Q2 2015]																							
34	Mobilization of plants	1 d	Wed 15/4/15	[Task bar in Q1 2015]																							
35	Dredging and Filling for permanent seawall construction	50 d	Wed 15/4/15	[Task bar in Q1 2015]																							
36	Construction of Permanent Seawall Blocks for curved coastline	56 d	Wed 3/6/15	[Task bar in Q2 2015]																							
37	Remove temp seawall and reinstate the location of TWCR4	30 d	Mon 29/6/15	[Task bar in Q2 2015]																							

Project: Reclamation Works Programme  
Date: Tue 9/3/10

Task		Summary		Rolled Up Progress		Project Summary	
Progress		Rolled Up Task		Split		Group By Summary	
Milestone		Rolled Up Milestone		External Tasks		Deadline	

Activity ID	Cal ID	Activity Description	Orig Dur	Early Start	Early Finish	Year																	
						2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021						
<b>TCBR1E (TS1 Area)</b>																							
105	1	TCBR1E(TS1)-dredging+rockfill(pre. for seawall)	86	03DEC10*	26FEB11																		
110	1	TCBR1E (TS1)-temporary reclamation	69	28JAN11*	06APR11																		
155	1	TCBR1E (TS1)- removal of temporary reclamation	27	30JAN12*	25FEB12																		
<b>TCBR4</b>																							
100	1	Maintenance dredging for navigation safety for	7	20NOV10*	26NOV10																		
<b>TCBR2 + TCBR3 (TS2 Area)</b>																							
115	1	TCBR2&TCBR3(TS2)- Maintenance dredging for	5	15NOV10*	19NOV10																		
117	1	TCBR2&TCBR3(TS2)-dredge+rockfill seabed	64	16DEC11*	17FEB12																		
120	1	TCBR2&TCBR3(TS2) --temporary reclamation	115	26FEB12*	19JUN12																		
160	1	TCBR2&TCBR3(TS2-removal temporary reclamation	57	18AUG13*	13OCT13																		
<b>TCBR1W (TS4 Area)</b>																							
125	1	TCBR1W(TS4)-dredging+rockfill(pre. for seawall)	40	19DEC10*	27JAN11																		
130	1	TCBR1W(TS4) --temporary reclamation	68	28JAN11	05APR11																		
165	1	TCBR1W(TS4)--removal temporary reclamation	26	27OCT13*	21NOV13																		
<b>TPCWAE</b>																							
135	1	TPCWAE-dredging+rockfill(pre. for seawall)	55	03DEC10*	26JAN11																		
140	1	TPCWAE --temporary reclamation	77	27JAN11	13APR11																		
170	1	TPCWAE--removal temporary reclamation	28	28SEP13*	25OCT13																		
<b>TPCWAW</b>																							
145	1	TPCWAW-dredging+rockfill(pre. for seawall)	47	28OCT13*	13DEC13																		
150	1	TPCWAW --temporary reclamation	83	14DEC13	06MAR14																		
175	1	TPCWAW--removal temporary reclamation	50	02JUL15*	20AUG15																		



 Early Bar  
 Progress Bar  
 Critical Activity

?Primavera Systems, Inc.

EP02 CHINA STATE CONSTRUCTION ENGG LTD Sheet 1 of 1

CONTRACT NO. HY/2009/15: CENTRAL WAN CHAI BYPASS- TUNNEL (CBTS SECTION)

Prepared based on IWP Rev. 0  
Date Prepared: 28 Oct 2010

Act ID	Description	Orig Dur	Early Start	Early Finish	2011												2012												2013					
					JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR			
<b>Section I</b>																																		
<b>Contract Obligation</b>																																		
1000	Commencement of Section I of works	0	20JAN11 *		◆ Commencement of Section I of works																													
<b>Initial Works</b>																																		
1050	Apply Marine notice to Marine Department	30	21JAN11	19FEB11	■ Apply Marine notice to Marine Department (dredg)																													
1060	Apply Marine notice to Marine Dept. Piling	30	18FEB11	19MAR11	■ Apply Marine notice to Marine Dept. Piling																													
1080	Apply FEP under EP356/2009	21	28FEB11	20MAR11	■ Apply FEP under EP356/2009																													
1081	Submission of Works Schedule for FEP	14	05MAR11	21MAR11	■ Submission of Works Schedule for FEP																													
1082	Submission of Location Plan for FEP	14	05MAR11	21MAR11	■ Submission of Location Plan for FEP																													
1083	Submission of Silt Curtain Deployment	14	05MAR11	21MAR11	■ Submission of Silt Curtain Deployment Plan																													
1084	Submission of Silt Screen Deployment Plan	14	05MAR11	21MAR11	■ Submission of Silt Screen Deployment Plan																													
1085	Submission Noise Management Plan	14	05MAR11	21MAR11	■ Submission Noise Management Plan																													
1090	Apply Dumping Permit	30	18FEB11	19MAR11	■ Apply Dumping Permit																													
1100	Apply CNP	30	31JAN11	01MAR11	■ Apply CNP																													
1110	Apply C&D waste disposal	30	20JAN11	18FEB11	■ Apply C&D waste disposal																													
1120	Apply Discharge licence	30	18FEB11	19MAR11	■ Apply Discharge licence																													
1130	Notification of chemical waste Producer	30	20JAN11	18FEB11	■ Notification of chemical waste Producer																													
1140	Notification to Labor Dept-Works	30	20JAN11	18FEB11	■ Notification to Labor Dept-Works Commencement																													
1150	Submit Risk Ass to MTR	21	28FEB11	20MAR11	■ Submit Risk Ass to MTR																													
1260	Erect Hoarding	30	28FEB11	29MAR11	■ Erect Hoarding																													
1270	Demarcation of Marine Site Boundary	21	01MAR11	21MAR11	■ Demarcation of Marine Site Boundary																													
1280	Working Site Office establishment	14	27JAN11	09FEB11	■ Working Site Office establishment																													
<b>Monitoring</b>																																		
1160	Takeover monitoring system from C1	0	21MAR11 *		◆ Takeover monitoring system from C1																													
1180	Commence Monitoring- ADMS,etc	0	21MAR11		◆ Commence Monitoring- ADMS,etc																													
<b>Dredging Works</b>																																		
1070	Submit Dredging MS	30	18FEB11	19MAR11	■ Submit Dredging MS																													
1075	Acceptance of Dredging MS	0		19MAR11	◆ Acceptance of Dredging MS																													
1078	Initial Hydrographic Survey	1	20MAR11	20MAR11	■ Initial Hydrographic Survey																													
1200	Initial Dredging Works for Piling	15	22MAR11	05APR11	■ Initial Dredging Works for Piling																													
1210	Final Hydrographic survey	3	07MAY12	09MAY12	■ Final Hydrographic survey																													
1220	Final Dredging Works	7	10MAY12	16MAY12	■ Final Dredging Works																													
1230	Confirmation Hydrographic survey	70	17MAY12	25JUL12	■ Confirmation Hydrographic survey																													
<b>Piling Works</b>																																		
1240	Submit stage platform MS	30	10FEB11	11MAR11	■ Submit stage platform MS																													
1250	Submit piling MS	30	10FEB11	11MAR11	■ Submit piling MS																													
P1000	Erect temporary Piling Platform	120	06APR11	03AUG11	■ Erect temporary Piling Platform																													
P1020	Pre-drilling	150	06JUN11	02NOV11	■ Pre-drilling																													
P1040	Bored Piles Construction and Testing	250	06JUL11	11MAR12	■ Bored Piles Construction and Testing																													
P1060	Drive Sheet piles along Bored piles	140	03NOV11	21MAR12	■ Drive Sheet piles along Bored piles																													
P1080	Dismantle Temporary Piling Platform	50	25FEB12	14APR12	■ Dismantle Temporary Piling Platform																													
P1100	Dive sheet piles beyond precast seawall	90	17JAN12	15APR12	■ Dive sheet piles beyond precast seawall																													
P1120	Trim pilehead to cut-off level	210	29SEP11	25APR12	■ Trim pilehead to cut-off level																													
P1140	Cut steel casing of bore piles	210	06OCT11	02MAY12	■ Cut steel casing of bore piles																													
P1160	Cut sheet piles to design level for box units	120	08JAN12	06MAY12	■ Cut sheet piles to design level for box units																													

Start date 20JAN11  
 Finish date 19DEC12  
 Data date 20JAN11  
 Run date 05MAR11  
 Page number 1A  
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Contract no. HK/2010/06  
 Wan Chai Development Phase II- Central-Wan Chai By pass over MTR Tsuen Wan Line

GAMMON-LEADER JV

Works Schedule of Marine Works for EP-356/2009

- Early bar
- Progress bar
- Critical bar
- Summary bar
- ◆ Start milestone point
- ◆ Finish milestone point

Activity ID	Activity Name	Rem Dur	Start	Finish	2013																				
					2012					January				February				March				April			
					24	31	07	14	21	28	04	11	18	25	04	11	18	25	01	08	15				
<b>3MRP - Jan 2013 to Apr 2013</b>																									
<b>02 - PRE-CONSTRUCTION WORKS</b>																									
<b>02.2 - Contractor's Submission</b>																									
0220-1360	Tunnel Structures Materials - Submission	12	19-Jul-12 A	31-Jan-13	Tunnel Structures Materials - Submission																				
0220-1370	Tunnel Structures Materials - ER Review/Comment	28	01-Feb-13	28-Feb-13	Tunnel Structures Materials - ER Review/Comment																				
0220-1380	Tunnel Structures Materials - Resubmission	14	01-Mar-13	14-Mar-13	Tunnel Structures Materials - Resubmission																				
0220-1390	Tunnel Structures Materials - ER Approval	21	15-Mar-13	04-Apr-13	Tunnel Structures Materials - ER Approval																				
0220-1500	Bridge Bearing - Procurement & Delivery (D8/D9/D10)	18	24-Sep-12 A	06-Feb-13	Bridge Bearing - Procurement & Delivery (D8/D9/D10)																				
0220-1400	Tunnel Structures Materials - Procurement & Delivery	60	05-Apr-13	03-Jun-13	Tunnel Structures Materials - Procurement & Delivery																				
<b>02.3 - Method Statement / Shop Drawings</b>																									
0230-1280	MS Cut & Cover Tunnel ELS - Resubmission	12	13-Jul-12 A	31-Jan-13	MS Cut & Cover Tunnel ELS - Resubmission																				
0230-1290	MS Cut & Cover Tunnel ELS - ER Approval	12	07-Aug-12 A	12-Feb-13	MS Cut & Cover Tunnel ELS - ER Approval																				
0230-1350	MS Pre-cast Segment Launching - ER Review & Comment	9	20-Sep-12 A	28-Jan-13	MS Pre-cast Segment Launching - ER Review & Comment																				
0230-1360	MS Pre-cast Segment Launching - Resubmission	28	29-Jan-13	25-Feb-13	MS Pre-cast Segment Launching - Resubmission																				
0230-1370	MS Pre-cast Segment Launching - ER Approval	28	26-Feb-13	25-Mar-13	MS Pre-cast Segment Launching - ER Approval																				
0230-1480	MS Stressing Tendons - Resubmission	9	08-Aug-12 A	28-Jan-13	MS Stressing Tendons - Resubmission																				
0230-1490	MS Stressing Tendons - ER Approval	28	29-Jan-13	25-Feb-13	MS Stressing Tendons - ER Approval																				
0230-1580	MS Interim & Permanent Noise Semi Enclosure - Submission	28	04-Mar-13*	31-Mar-13	MS Interim & Permanent Noise Semi Enclosure - Submission																				
0230-1590	MS Interim & Permanent Noise Semi Enclosure - ER Review & Comment	28	01-Apr-13	28-Apr-13	MS Interim & Permanent Noise Semi Enclosure - ER Review & Comment																				
0230-1320	MS Pre-casting Beam - Resubmission	12	03-Dec-12 A	31-Jan-13	MS Pre-casting Beam - Resubmission																				
0230-1330	MS Pre-casting Beam - ER Approval	21	01-Feb-13	21-Feb-13	MS Pre-casting Beam - ER Approval																				
0230-1740	MS Temporary Bridge TB & TC - Submission	28	30-Mar-13	26-Apr-13	MS Temporary Bridge TB & TC - Submission																				
<b>02.4 - Contractor's Design and Build Items</b>																									
0240-1010	Temp Bridge "TA" Design - Prep & Submit	36	16-Dec-11 A	24-Feb-13	Temp Bridge "TA" Design - Prep & Submit																				
0240-1020	Temp Bridge "TA" Design - ER review and comment	28	25-Feb-13	24-Mar-13	Temp Bridge "TA" Design - ER review and comment																				
0240-1030	Temp Bridge "TA" Design - Resubmission	45	25-Mar-13	08-May-13	Temp Bridge "TA" Design - Resubmission																				
0240-1041	Temp Bridge "TD" Design - Submission	28	04-Feb-13*	03-Mar-13	Temp Bridge "TD" Design - Submission																				
0240-1105	Int. Noise Enclosure Structural Design - Submission	60	01-Mar-13*	29-Apr-13	Int. Noise Enclosure Structural Design - Submission																				
0240-1126	Noise Barrier Design Structural Design - Submission	60	01-Mar-13*	29-Apr-13	Noise Barrier Design Structural Design - Submission																				
0240-1150	Perm. Noise Enclosure Structural Design - Submission	60	01-Mar-13	29-Apr-13	Perm. Noise Enclosure Structural Design - Submission																				
0240-1270	Landscaping Design - Submission	90	01-Mar-13*	29-May-13	Landscaping Design - Submission																				
0240-1376	Cut & Cover Tunnel ELS Design - ER Review & Resubmission	7	14-Jun-12 A	26-Jan-13	Cut & Cover Tunnel ELS Design - ER Review & Resubmission																				
0240-1377	Cut & Cover Tunnel ELS Design - ER Approval	15	27-Jan-13	10-Feb-13	Cut & Cover Tunnel ELS Design - ER Approval																				
0240-1379	Cut & Cover Tunnel ELS Fabrication	60	11-Feb-13	11-Apr-13	Cut & Cover Tunnel ELS Fabrication																				
0240-1050	Temp Bridge "TB" & "TC" Design - Prep & Submit	120	01-Mar-13*	28-Jun-13	Temp Bridge "TB" & "TC" Design - Prep & Submit																				
0240-1042	Temp Bridge "TD" Design - ER review and comment	28	04-Mar-13	31-Mar-13	Temp Bridge "TD" Design - ER review and comment																				
0240-1043	Temp Bridge "TD" Design - Resubmission	60	01-Apr-13	30-May-13	Temp Bridge "TD" Design - Resubmission																				
<b>02.5 - Bridge Segment/Beam Off-site Precasting</b>																									
0250-1700.01	Bridge Precast Beam Casting Bridge Beam F5-1	15	14-Jan-13 A	03-Feb-13	Bridge Precast Beam Casting Bridge Beam F5-1																				
0250-1700.02	Bridge Precast Beam Casting Bridge Beam F5-2	9	04-Feb-13	12-Feb-13	Bridge Precast Beam Casting Bridge Beam F5-2																				
0250-1700.03	Bridge Precast Beam Casting Bridge F4 Beam 1-1	6	13-Feb-13	18-Feb-13	Bridge Precast Beam Casting Bridge F4 Beam 1-1																				
0250-1700.04	Bridge Precast Beam Casting Bridge F4 Beam 1-2	6	19-Feb-13	24-Feb-13	Bridge Precast Beam Casting Bridge F4 Beam 1-2																				
0250-1700.005	Bridge Precast Beam Casting Bridge F4 Beam 2-1	6	25-Feb-13	02-Mar-13	Bridge Precast Beam Casting Bridge F4 Beam 2-1																				
0250-1700.06	Bridge Precast Beam Casting Bridge F4 Beam 2-2	6	03-Mar-13	08-Mar-13	Bridge Precast Beam Casting Bridge F4 Beam 2-2																				

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Activity ID	Activity Name	Rem Dur	Start	Finish	2012	2013															
					January				February				March				April				
					24	31	07	14	21	28	04	11	18	25	04	11	18	25	01	08	15
0250-1700.07	Bridge Precast Beam Casting Bridge F4 Beam 3-1	6	09-Mar-13	14-Mar-13															Bridge Precast Beam Casting Bridge F4 Beam 3-1		
0250-1700.08	Bridge Precast Beam Casting Bridge F4 Beam 4-1	6	15-Mar-13	20-Mar-13															Bridge Precast Beam Casting Bridge F4 Beam 4-1		
0250-1700.09	Bridge Precast Beam Casting Bridge F4 Beam 5-1	6	21-Mar-13	26-Mar-13															Bridge Precast Beam Casting Bridge F4 Beam 5-1		
0250-1700.10	Bridge Precast Beam Casting Bridge F4 Beam 6-1	6	27-Mar-13	01-Apr-13															Bridge Precast Beam Casting Bridge F4 Beam 6-1		
0250-1600.03	Bridge D3 Pier D09 Precasting Segment (9-15) - Mould S1	0	06-Dec-12 A	31-Dec-12 A																	
0250-1600.04	Bridge D3 Pier D09 Precasting Segment (16-17) - Mould S1	0	01-Jan-13 A	08-Jan-13 A																	
0250-1600.06	Bridge D3 Pier D10 Precasting Segment (1-3) - Mould S1	0	10-Jan-13 A	19-Jan-13 A																	
0250-1600.08	Bridge D3 Pier D11 Precasting Segment (1-3) - Mould S1	9	20-Jan-13	28-Jan-13																	
0250-1600.07	Bridge D3 Pier D10 Precasting Segment (4-17) - Mould S1 @ 3d/segment	39	29-Jan-13	08-Mar-13																	
0250-1600.09	Bridge D3 Pier D11 Precasting Segment (4-17) - Mould S1 @ 3d/segment	39	09-Mar-13	16-Apr-13																	
0250-1650.01	Bridge D3 Pier D08 Precasting Segment (1-8) - Mould S2	24	04-Jan-13 A	12-Feb-13																	
0250-1650.02	Bridge D3 Pier D12 Precasting Segment (1-4) - Mould S2	16	13-Feb-13	28-Feb-13																	
0250-1650.03	Bridge F1 Pier D12 Precasting Segment (1-4) - Mould S2	16	01-Mar-13	16-Mar-13																	
0250-1650.04	Bridge F1 Pier F03 Precasting Segment (1-6) - Mould S2	24	17-Mar-13	09-Apr-13																	
0250-1650.05	Bridge F2 Pier F03 Precasting Segment (1-5) - Mould S2	20	10-Apr-13	29-Apr-13																	
0250-1800	Segment Storage - Portal Gantry Foundation + Rail Stage 1	6	05-Jan-13 A	26-Jan-13																	
0250-1805	Segment Storage - Portal Gantry Assembly + T&C	15	21-Jan-13	06-Feb-13																	
0250-1820	Segment Storage - Portal Gantry Foundation + Rail Stage 2	9	18-Feb-13	27-Feb-13																	
0250-1830	Segment Storage - Portal Gantry Foundation + Rail Stage 3	9	28-Mar-13	10-Apr-13																	
0250-1810	Segment Storage - Haul Road	6	07-Feb-13	16-Feb-13																	
0250-1840	Segment Unloading Derrick - Prebored H-pile (16 nos.)	45	17-Jan-13 A	16-Mar-13																	
0250-1850	Segment Unloading Derrick - Foundation Stage 1	12	25-Feb-13	09-Mar-13																	
0250-1860	Segment Unloading Derrick - Assembly + T&C	21	11-Mar-13	06-Apr-13																	
0250-1870	Segment Unloading Derrick - Foundation Stage 2	12	18-Mar-13	02-Apr-13																	
0250-1880	Commence Segments Delivery to Site	0	11-Apr-13																◆ Commence		
<b>05 - SECTION 2 &amp; 2A OF THE WORKS</b>																					
<b>05.1 - Cut &amp; Cover Tunnel Ch 4855-4932 (APS Footprint)</b>																					
<b>05.1.1 - D-Wall Construction</b>																					
0511-1052	D-wall Panel N50 Construction	0	26-Nov-12 A	29-Dec-12 A																D-wall Panel N50 Construction	
0511-1053	D-wall Panel N48 Construction	0	31-Dec-12 A	10-Jan-13 A																D-wall Panel N48 Construction	
0511-1054	D-wall Panel N49 Construction	10	12-Jan-13 A	31-Jan-13																D-wall Panel N49 Construction	
0511-1067	BC39 Guide Wall	0	22-Dec-12 A	28-Dec-12 A																BC39 Guide Wall	
0511-1072	D-wall Panel S54 Construction	0	10-Dec-12 A	24-Dec-12 A																D-wall Panel S54 Construction	
0511-1075	Barrette BC39 Grouting for Existing Seawall Rubble Mound	0	29-Dec-12 A	03-Jan-13 A																Barrette BC39 Grouting for Existing Seawall Rubble Mound	
0511-1073	D-wall Panel S49 Construction	1	27-Dec-12 A	21-Jan-13																D-wall Panel S49 Construction	
0511-1074	D-wall Panel S53 Construction	14	17-Jan-13 A	05-Feb-13																D-wall Panel S53 Construction	
0511-1076	D-wall Panel S50 Construction	18	23-Jan-13	15-Feb-13																D-wall Panel S50 Construction	
0511-1077	D-wall Panel S51 Construction	18	18-Feb-13	09-Mar-13																D-wall Panel S51 Construction	
0511-1078	D-wall Panel S52 Construction	15	12-Mar-13	28-Mar-13																D-wall Panel S52 Construction	
0511-1080	Barrette BC39 Construction	0	04-Jan-13 A	19-Jan-13 A																Barrette BC39 Construction	
<b>05.2 - Cut &amp; Cover Tunnel Ch 4932-5149</b>																					
<b>05.2.1 - D-Wall Construction</b>																					
0521-1990.66	D-wall South Panel S67 Construction	0	17-Dec-12 A	07-Jan-13 A																D-wall South Panel S67 Construction	
0521-1990.68	D-wall South Panel S66 Construction	2	09-Jan-13 A	22-Jan-13																D-wall South Panel S66 Construction	

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					January				February				March				April					
					24	31	07	14	21	28	04	11	18	25	04	11	18	25	01	08	15	
0521-1990.67	D-wall South Panel S65 Construction	21	24-Jan-13	20-Feb-13																		
0521-1990.72	D-wall South Panel S58 Construction	5	18-Dec-12 A	25-Jan-13																		
0521-1990.73	D-wall South Panel S60 Construction	24	26-Jan-13	26-Feb-13																		
0521-1990.74	D-wall South Panel S59 Construction	24	28-Feb-13	27-Mar-13																		
0521-1710.35	D-wall Panel S94 Construction	0	13-Dec-12 A	27-Dec-12 A																		
0521-1990.17	D-wall South Panel S99 Construction	0	21-Dec-12 A	05-Jan-13 A																		
0521-1990.30	D-wall South Panel N92 Construction	0	31-Dec-12 A	15-Jan-13 A																		
0521-1945	Sheet Pile + Pre-boring for Section with Obstruction	8	17-Jan-13 A	29-Jan-13																		
0521-2185	Grouting South Dwall and Sheetpiles Interface	5	09-Jan-13 A	25-Jan-13																		
0521-1946	Grouting North Dwall and Sheetpiles Interface	9	30-Jan-13	08-Feb-13																		
0521-2195	Set-up 3rd and 4th Rebar Cage Bed at EVB	12	01-Feb-13	18-Feb-13																		
0521-2175	Pump Test C&C Tunnel East Part	14	14-Feb-13	01-Mar-13																		
0521-2205	Remove/Clear All Rebar Cage Bed at Tunnel Area	6	19-Feb-13	25-Feb-13																		
<b>05.2.2 - Barrette Construction</b>																						
0522-2215.10	Bulkhead Wall BW1	0	27-Nov-12 A	31-Dec-12 A																		
0522-2215.20	Bulkhead Wall BW5	15	25-Jan-13	14-Feb-13																		
0522-2210.52	Barrette Pile BC52	15	11-Mar-13	27-Mar-13																		
0522-2210.50	Barrette Pile BC50	15	28-Mar-13	17-Apr-13																		
0522-2210.81	Barrette Pile BC40	15	28-Mar-13	17-Apr-13																		
0522-2210.82	Barrette Pile BC43	15	09-Apr-13	25-Apr-13																		
<b>05.2.3 - ELS</b>																						
0524-2872	King Post Installation (3 nos.) - East End	0	20-Dec-12 A	19-Jan-13 A																		
0524-2873	King Post Installation (3 nos.) - Middle	12	09-Jan-13 A	02-Feb-13																		
0524-2877	ELS Dewatering System (62 nos.) - 7 DW + 4 RW + 12 OW Outstanding	18	03-Dec-12 A	13-Feb-13																		
0524-2878	ELS Instrumentation (12 nos.) - 6 Remaining	18	05-Nov-12 A	13-Feb-13																		
0524-2874	King Post Installation (3 nos.) - West End	12	28-Jan-13	13-Feb-13																		
0524-2881	Tunnel ELS - Phase 1 Zone 1	21	02-Mar-13	26-Mar-13																		
0524-2882	Tunnel ELS - Phase 1 Zone 2	14	16-Mar-13	03-Apr-13																		
0524-2883	Tunnel ELS - Phase 1 Zone 3	12	22-Mar-13	08-Apr-13																		
0524-2884	Tunnel ELS - Phase 1 Zone 4	12	28-Mar-13	13-Apr-13																		
0524-2885	Tunnel ELS - Phase 1 Zone 5	14	04-Apr-13	20-Apr-13																		
<b>05.3 - Box Culvert T1</b>																						
0530-3065	Bay 2 - Install Sheet Piles	0	13-Nov-12 A	31-Dec-12 A																		
0530-3071	Bay 2 - ELS + Blinding	7	12-Jan-13 A	28-Jan-13																		
0530-3072	Bay 2 - Base Slab	6	29-Jan-13	04-Feb-13																		
0530-3073	Bay 2 - Wall & Roof	12	05-Feb-13	21-Feb-13																		
0530-3074	Bay 2 - Backfilling + Reinstatement	18	22-Feb-13	14-Mar-13																		
0530-3076	Bay 1 - TTM Implementation + Clearance	12	15-Mar-13	28-Mar-13																		
0530-3077	Bay 1 - Install Sheet Piles	12	30-Mar-13	15-Apr-13																		
0530-3112	Bay 9 - Excavation	17	12-Dec-12 A	08-Feb-13																		
0530-3113	Bay 9 - Fabrication of Precast Units	17	26-Nov-12 A	08-Feb-13																		
0530-3117	Fabrication of Temp Access Bridge Extension Across U-channel	12	02-Feb-13	19-Feb-13																		
0530-3114	Bay 9 - Precast Unit Erection	6	13-Feb-13	19-Feb-13																		
0530-3118	Erection of Temp Access Bridge extension Across U-channel	9	20-Feb-13	01-Mar-13																		

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Activity ID	Activity Name	Rem Dur	Start	Finish	2013															
					January				February				March				April			
					24	31	07	14	21	28	04	11	18	25	04	11	18	25	01	08
<b>06 - SECTION 3 OF THE WORKS</b>																				
<b>06.1 - Westbound - Pier 29-34</b>																				
0610-2110	Pier 29 Pre-drilling at Portion VB (4 nos)	12	02-Apr-13*	16-Apr-13	Pier															
<b>06.2 - Box Culvert U1</b>																				
0620-2425	U1 Construct Bay 8 - Wall + Roof	0	28-Dec-12 A	04-Jan-13 A	U1 Construct Bay 8 - Wall + Roof															
0620-2475	U1 Construct Bay 9 - Wall + Roof	0	17-Dec-12 A	27-Dec-12 A	U1 Construct Bay 9 - Wall + Roof															
0620-2415	U1 Construct Bay 7 - Wall + Roof	8	19-Jan-13 A	29-Jan-13	U1 Construct Bay 7 - Wall + Roof															
0620-2405	U1 Construct Bay 6 - Wall + Roof	0	07-Jan-13 A	18-Jan-13 A	U1 Construct Bay 6 - Wall + Roof															
0620-2460	U1 Construct Bay 10 - Base Slab	9	07-Feb-13	20-Feb-13	U1 Construct Bay 10 - Base Slab															
0620-2467	U1 Construct Bay 5 - ELS	9	07-Feb-13	20-Feb-13	U1 Construct Bay 5 - ELS															
0620-2465	U1 Construct Bay 10 - Wall + Roof	9	21-Feb-13	02-Mar-13	U1 Construct Bay 10 - Wall + Roof															
0620-2468	U1 Construct Bay 5 - Base Slab	9	21-Feb-13	02-Mar-13	U1 Construct Bay 5 - Base Slab															
0620-2440	U1 Backfill Bay 5 to 8 + Extract Sheetpiles	18	04-Mar-13	23-Mar-13	U1 Backfill Bay 5 to 8 + Extract Sheetpiles															
0620-2469	U1 Construct Bay 5 - Wall + Roof	9	14-Mar-13	23-Mar-13	U1 Construct Bay 5 - Wall + Roof															
0620-2480	U1 Bay 10 + 11 + 12 Sheetpiles + ELS	15	07-Nov-12 A	06-Feb-13	U1 Bay 10 + 11 + 12 Sheetpiles + ELS															
0620-2490	U1 Construct Bay 12 - Base Slab	6	15-Jan-13 A	26-Jan-13	U1 Construct Bay 12 - Base Slab															
0620-2515	U1 Fabrication of Bay 13 Precast Unit	18	05-Nov-12 A	13-Feb-13	U1 Fabrication of Bay 13 Precast Unit															
0620-2495	U1 Construct Bay 12 - Wall + Roof	9	30-Jan-13	08-Feb-13	U1 Construct Bay 12 - Wall + Roof															
0620-2520	U1 Construct Bay 13 - Excavation	18	13-Feb-13	05-Mar-13	U1 Construct Bay 13 - Excavation															
0620-2500	U1 Construct Bay 11 - Base Slab	9	21-Feb-13	02-Mar-13	U1 Construct Bay 11 - Base Slab															
0620-2505	U1 Construct Bay 11 - Wall + Roof	9	04-Mar-13	13-Mar-13	U1 Construct Bay 11 - Wall + Roof															
0620-2530	U1 Construct Bay 13 - Install Precast Unit	12	06-Mar-13	19-Mar-13	U1 Construct Bay 13 - Install Precast Unit															
0620-2510	U1 Backfill Bays 11 + 12 + 13	12	20-Mar-13	04-Apr-13	U1 Backfill Bays 11 + 12 + 13															
0620-2380	Divert and Abandon old U1 open channel at VB & III	3	25-Mar-13	27-Mar-13	Divert and Abandon old U1 open channel															
<b>10 - SECTION X OF THE WORKS</b>																				
<b>10.1 - E/B Bridges (Bridge D, E and F)</b>																				
<b>10.1.1 - Marine Pier Construction</b>																				
<b>Pier F03 to F15</b>																				
1011-1995	Fabrication of Marine Pile Cap Cofferdam	0	04-Oct-12 A	11-Jan-13 A	Fabrication of Marine Pile Cap Cofferdam															
1011-2150	F3 Pile Cap Shutter Cofferdam	18	28-Jan-13	20-Feb-13	F3 Pile Cap Shutter Cofferdam															
1011-2155	F3 Pile Cap Construction	15	21-Feb-13	09-Mar-13	F3 Pile Cap Construction															
1011-2160	F3 Pier/Column Construction	12	11-Mar-13	23-Mar-13	F3 Pier/Column Construction															
1011-2170	F3 Crosshead Construction	18	25-Mar-13	17-Apr-13	F3 Crosshead Construction															
1011-2180	F4 Pile Cap Shutter Cofferdam	18	07-Feb-13	02-Mar-13	F4 Pile Cap Shutter Cofferdam															
1011-2185	F4 Pile Cap Construction	15	04-Mar-13	20-Mar-13	F4 Pile Cap Construction															
1011-2190	F4 Pier/Column Construction	12	21-Mar-13	06-Apr-13	F4 Pier/Column Construction															
1011-2200	F4 Crosshead Construction	18	08-Apr-13	27-Apr-13	F4 Crosshead Construction															
1011-2210	F5 Pile Cap Shutter Cofferdam	18	21-Feb-13	13-Mar-13	F5 Pile Cap Shutter Cofferdam															
1011-2215	F5 Pile Cap Construction	12	14-Mar-13	27-Mar-13	F5 Pile Cap Construction															
1011-2220	F5 Pier/Column Construction	12	28-Mar-13	13-Apr-13	F5 Pier/Column Construction															
1011-2020	F6 Dismantle Piling Platform	12	04-Feb-13*	20-Feb-13	F6 Dismantle Piling Platform															
1011-2240	F6 Pile Cap Shutter Cofferdam	18	04-Mar-13	23-Mar-13	F6 Pile Cap Shutter Cofferdam															
1011-2245	F6 Pile Cap Construction	12	25-Mar-13	10-Apr-13	F6 Pile Cap Construction															
1011-2250	F6 Pier/Column Construction	12	11-Apr-13	24-Apr-13	F6 Pier/Column Construction															

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					January					February				March				April			
					24	31	07	14	21	28	04	11	18	25	04	11	18	25	01	08	15
1011-1910.50	Pier F7 Dolphin Socketed H-Pile 4	0	19-Nov-12 A	31-Dec-12 A	█																
1011-1910.60	Pier F7 Dolphin Socketed H-Pile 6	0	19-Nov-12 A	28-Dec-12 A	█																
1011-2030	F7 Dismantle Piling Platform	12	14-Feb-13	27-Feb-13																	
1011-2270	F7 Pile Cap Shutter Cofferdam	18	14-Mar-13	06-Apr-13																	
1011-2275	F7 Pile Cap Construction	12	08-Apr-13	20-Apr-13																	
1011-2300	F8 Pile Cap Shutter Cofferdam	18	25-Mar-13	17-Apr-13																	
1011-0802.4	Pier F9 Dolphin Socketed H-Pile P4	0	04-Dec-12 A	10-Jan-13 A	█																
1011-0802.6	Pier F9 Dolphin Socketed H-Pile P6	0	04-Dec-12 A	12-Jan-13 A	█																
1011-2050	Dismantle Piling Platform at Pier F9	12	21-Feb-13	06-Mar-13																	
1011-1970.1	Pier F10 Dolphin Socketed H-Pile P1	0	15-Nov-12 A	03-Jan-13 A	█																
1011-1970.2	Pier F10 Dolphin Socketed H-Pile P2	0	15-Nov-12 A	05-Jan-13 A	█																
1011-1970.3	Pier F10 Dolphin Socketed H-Pile P3	0	15-Nov-12 A	07-Jan-13 A	█																
1011-1970.4	Pier F10 Dolphin Socketed H-Pile P5	0	15-Nov-12 A	11-Jan-13 A	█																
1011-1970.5	Pier F10 Dolphin Socketed H-Pile P4	13	15-Jan-13 A	04-Feb-13																	
1011-1970.6	Pier F10 Dolphin Socketed H-Pile P6	15	15-Jan-13 A	06-Feb-13																	
1011-2060	Dismantle Piling Platform at Pier F10	12	28-Feb-13	13-Mar-13																	
1011-1770.1	Pier F11 Dolphin Socketed H-Pile P1	0	23-Nov-12 A	17-Jan-13 A	█																
1011-1770.2	Pier F11 Dolphin Socketed H-Pile P2	0	23-Nov-12 A	14-Jan-13 A	█																
1011-1770.3	Pier F11 Dolphin Socketed H-Pile P3	0	23-Nov-12 A	15-Jan-13 A	█																
1011-1770.4	Pier F11 Dolphin Socketed H-Pile P5	0	23-Nov-12 A	16-Jan-13 A	█																
1011-1770.5	Pier F11 Dolphin Socketed H-Pile P4	21	26-Jan-13	22-Feb-13																	
1011-1770.6	Pier F11 Dolphin Socketed H-Pile P6	21	26-Jan-13	22-Feb-13																	
1011-2070	Dismantle Piling Platform at Pier F11	12	07-Mar-13	20-Mar-13																	
1011-2350	F11 Pile Cap Construction	18	21-Mar-13	13-Apr-13																	
1011-1822.1	Pier F12 Dolphin Socketed H-Pile P1	5	04-Jan-13 A	25-Jan-13																	
1011-1822.2	Pier F12 Dolphin Socketed H-Pile P2	7	04-Jan-13 A	28-Jan-13																	
1011-1822.3	Pier F12 Dolphin Socketed H-Pile P3	8	04-Jan-13 A	29-Jan-13																	
1011-1822.4	Pier F12 Dolphin Socketed H-Pile P5	10	04-Jan-13 A	31-Jan-13																	
1011-1822.5	Pier F12 Dolphin Socketed H-Pile P4	18	01-Feb-13	25-Feb-13																	
1011-1822.6	Pier F12 Dolphin Socketed H-Pile P6	18	01-Feb-13	25-Feb-13																	
1011-2075	Dismantle Piling Platform at Pier F12	12	14-Mar-13	27-Mar-13																	
1011-1890.50	Pier F13 Dolphin Socketed H-Pile 4	3	31-Dec-12 A	23-Jan-13																	
1011-1890.60	Pier F13 Dolphin Socketed H-Pile 6	5	31-Dec-12 A	25-Jan-13																	
1011-2080	Dismantle Piling Platform at Pier F13	12	21-Mar-13	06-Apr-13																	
1011-2145	Marine bored pile testing F14	0	24-Sep-12 A	31-Dec-12 A	█																
1011-1782.50	Pier F14 Dolphin Socketed H-Pile 4	15	17-Jan-13 A	06-Feb-13																	
1011-1782.60	Pier F14 Dolphin Socketed H-Pile 6	17	17-Jan-13 A	08-Feb-13																	
1011-2085	Dismantle Piling Platform at Pier F14	12	28-Mar-13	13-Apr-13																	
<b>Pier F01 to F02</b>																					
1011-2860	F1A Pile Cap Shutter Cofferdam	3	03-Jan-13 A	23-Jan-13																	
1011-2865	F1A Pile Cap Construction	12	24-Jan-13	06-Feb-13																	
1011-2870	F1A Pier/Column Construction	12	07-Feb-13	23-Feb-13																	
1011-2880	F1A Crosshead Construction	18	25-Feb-13	16-Mar-13																	
1011-2890	F1B Pile Cap Shutter Cofferdam	18	07-Feb-13	02-Mar-13																	

- █ Remaining Level of Effort
- █ Actual Level of Effort
- █ Actual Work
- █ Remaining Work
- █ Critical Remaining Work
- ◆ Milestone

**Contract HY/2009/19**

**Three Month Rolling Programme (20 JAN 2013 to 19 APR 2013)**

3MRP

3MRP - Jan 2013 to Apr 2013



Activity ID	Activity Name	Rem Dur	Start	Finish	2012																
					2013																
					January					February					March					April	
24	31	07	14	21	28	04	11	18	25	04	11	18	25	01	08	15					
<b>10.6.1 - Approach Ramp (Excluding Portion IIB)</b>																					
<b>Bored Piles</b>																					
1061-1051	Bored Pile Ramp - BN42	0	10-Dec-12 A	02-Jan-13 A	Bored Pile Ramp - BN42																
1061-1490	Bored Pile Ramp - BN40	0	03-Jan-13 A	12-Jan-13 A	Bored Pile Ramp - BN40																
1061-1500	Bored Pile Ramp - BN41	4	14-Jan-13 A	24-Jan-13	Bored Pile Ramp - BN41																
1061-1510	Bored Pile Ramp - BN44	15	25-Jan-13	14-Feb-13	Bored Pile Ramp - BN44																
1061-1520	Bored Pile Ramp - BN01	15	15-Feb-13	04-Mar-13	Bored Pile Ramp - BN01																
1061-1530	Bored Pile Ramp - BN02	15	05-Mar-13	21-Mar-13	Bored Pile Ramp - BN02																
1061-1540	Bored Pile Ramp - BN03	15	22-Mar-13	11-Apr-13	Bored Pile Ramp - BN03																
1061-1550	Bored Pile Ramp - BN04	15	12-Apr-13	29-Apr-13	Bored Pile Ramp - BN04																

- █ Remaining Level of Effort
- █ Actual Level of Effort
- █ Actual Work
- █ Remaining Work
- █ Critical Remaining Work
- ◆ Milestone

**Contract HY/2009/19**

**Three Month Rolling Programme (20 JAN 2013 to 19 APR 2013)**

3MRP  
 3MRP - Jan 2013 to Apr 2013  
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