

Appendix M

Cumulative Statistics on  
Exceedances, Complaints,  
Notifications of Summons  
and Successful Prosecutions

*Appendix M1 Cumulative Statistics on Exceedances*

		Total No. recorded in this reporting month	Total No. recorded since contract commencement
1-Hr TSP	Action	0	0
	Limit	0	1
24-Hr TSP	Action	0	2
	Limit	0	0
Noise	Action	0	0
	Limit	0	0
Water Quality	Action	23	272
	Limit	1	27
Impact Dolphin Monitoring	Action	0	11
	Limit	1	17

*Appendix M2 Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions*

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Successful Prosecutions
This Reporting Month (August 2019)	0	0	0
Total No. received since contract commencement	14	0	0

Email  
message

Environmental  
Resources  
Management

**To** Ramboll Hong Kong Limited (ENPO)

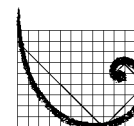
**From** ERM- Hong Kong, Limited

**Ref/Project number** Contract No. HY/2012/07  
Tuen Mun – Chek Lap Kok Link – Southern  
Connection Viaduct Section

**Subject** Notification of Exceedance for Marine Water  
Quality Impact Monitoring

**Date** 19 August 2019

2507,  
25/F One Harbourfront,  
18 Tak Fung Street,  
Hung Hom, Hong Kong  
Telephone: (852) 2271 3113  
Facsimile: (852) 2723 5660  
E-mail: jasmine.ng@erm.com



**ERM**

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Dear Sir/ Madam,

Please find attached the Notification of Exceedance (NOE) of the following  
Log no.:

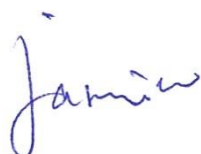
Action Level Exceedance

0215660\_7 August 2019\_ Surface & Middle DO\_E\_Station IS(Mf)9

0215660\_7 August 2019\_ Bottom DO\_F\_Station SR4a

A total of two (2) exceedances were recorded on 7 August 2019.

Regards,



Dr Jasmine Ng  
*Environmental Team Leader*

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/07

TUEN MUN – CHEK LAP KOK LINK –  
SOUTHERN CONNECTION VIADUCT SECTION

*Marine Water Quality Impact Monitoring*

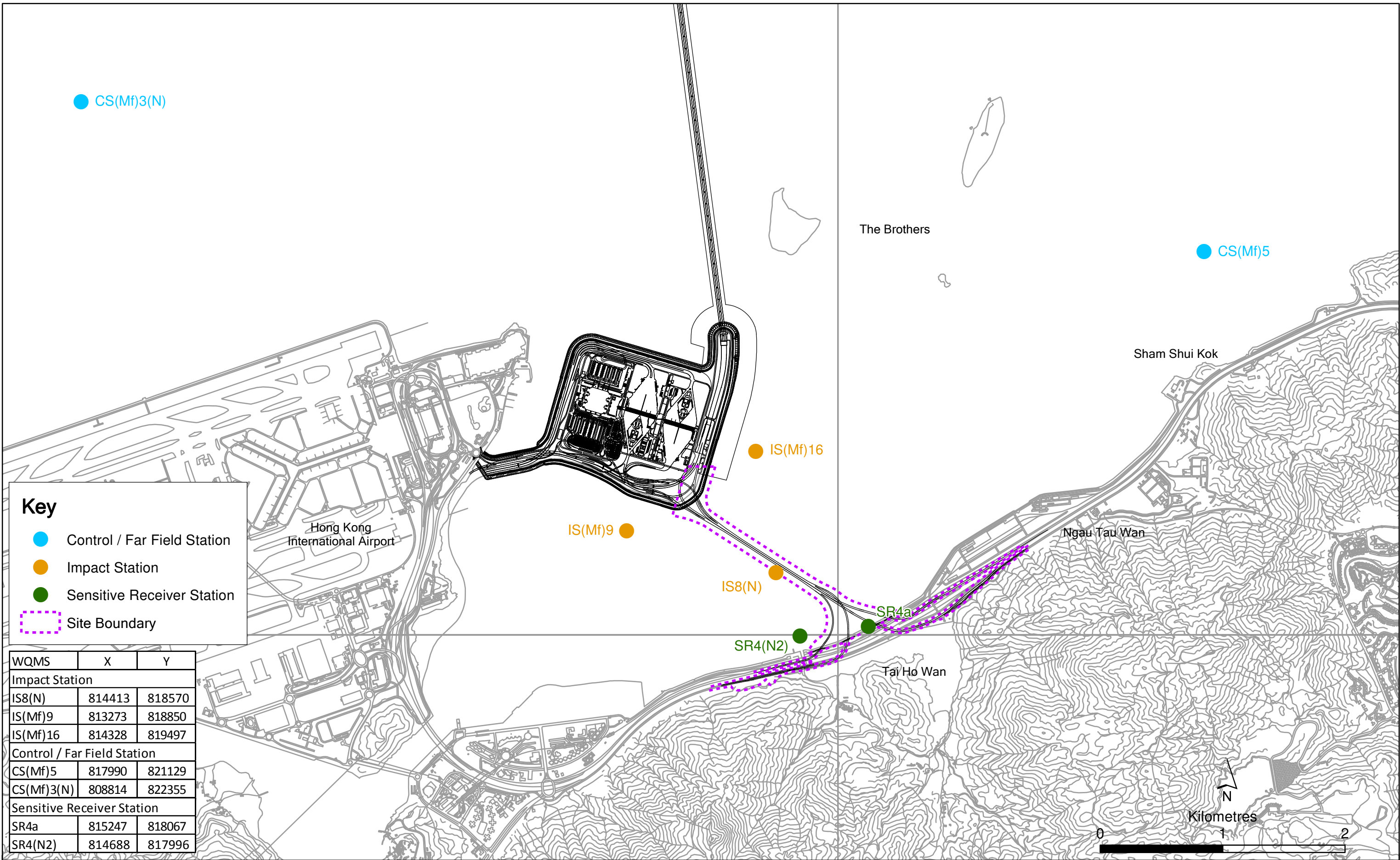
**Notification of Exceedance**

<b>Log No.</b>	<p><u>Action Level Exceedance</u>  <b>0215660_7 August 2019_ Surface &amp; Middle DO_E_Station IS(Mf)9</b>  <b>0215660_7 August 2019_ Bottom DO_F_Station SR4a</b></p> <p>[Total No. of Exceedance = 2]</p>	
<b>Date</b>	<p>7 August 2019 (Measured)  19 August (Results obtained from ENPO Website)</p>	
<b>Monitoring Station</b>	<p>CS(Mf)5, SR4a, SR4(N2), IS8(N), IS(Mf)16, IS(Mf)9, CS(Mf)3(N)</p>	
<b>Parameter(s) with Exceedance(s)</b>	<p>Surface &amp; Middle-depth Dissolved Oxygen (DO)  Bottom-depth Dissolved Oxygen (DO)</p>	
<b>Action Levels for DO</b>	Surface and Middle-depth DO	5.0 mg/L
	Bottom-depth DO	4.7 mg/L
<b>Limit Levels for DO</b>	Surface and Middle-depth DO	4.2 mg/L
	Bottom-depth DO	3.6 mg/L
<b>Measured Levels</b>	<p><u>Action Level Exceedance</u>  1. Mid-ebb at IS(Mf)9 (Surface &amp; Middle-depth DO = 4.3 mg/L)  2. Mid-flood at SR4a (Bottom-depth DO =4.5 mg/L )</p>	
<b>Works Undertaken (at the time of monitoring event)</b>	<p>No marine works were undertaken on 7 August 2019.</p>	
<b>Possible Reason for Action or Limit Level Exceedance(s)</b>	<p>The exceedance of DO is unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> <li>• No marine works were undertaken on 7 August 2019.</li> <li>• All monitored parameters, except DO, at all monitoring stations were in compliance with the Action and Limit Levels during both mid-ebb and mid-flood tides on the same day.</li> <li>• The DO pattern at stations with exceedances were similar to some control stations where the DO levels were generally lower. DO levels were generally lower at water quality monitoring stations due to reduce in natural ability for water to hold dissolved oxygen under higher water temperature in summer months.</li> <li>• There are no discharge of waste water from the landside works area under this Contract.</li> </ul>	
<b>Actions Taken/ To Be Taken</b>	<p>No immediate action is considered necessary. The ET will monitor for future trends in exceedances.</p>	
<b>Remarks</b>	<p>The monitoring results on 7 August 2019 and locations of water quality monitoring stations are attached.</p>	

Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Level code	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)5	18:10	Surface	1	1	28.7	7.8	21.8	5.7	5.3	3.8	3.4	6.1	4.9
HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)5	18:10	Surface	1	2	28.7	7.9	21.4	5.7		3.8		5.5	
HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)5	18:10	Middle	2	1	27.9	7.8	24.2	4.9		3.5		5.2	
HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)5	18:10	Middle	2	2	27.9	7.9	23.7	4.9		3.5		5.9	
HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)5	18:10	Bottom	3	1	27.7	7.8	25.7	4.8	4.9	2.8	7.1	5.6	7.7
HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)5	18:10	Bottom	3	2	27.7	7.9	25.1	4.9		2.7		6.0	
HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)3(N)	17:25	Surface	1	1	28.9	7.7	18.3	5.5	5.2	3.9	7.1	7.8	7.7
HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)3(N)	17:25	Surface	1	2	28.9	7.8	18.0	5.5		3.8		8.1	
HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)3(N)	17:25	Middle	2	1	28.0	7.8	21.7	4.8		6.2		8.7	
HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)3(N)	17:25	Middle	2	2	28.0	7.8	21.4	4.9		6.2		8.9	
HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)3(N)	17:25	Bottom	3	1	28.0	7.8	23.3	5.1	5.2	11.3	6.5	6.5	9.7
HY/2012/08	2019/08/07	Mid-Ebb	CS(Mf)3(N)	17:25	Bottom	3	2	28.0	7.9	22.9	5.2		11.3		6.2	
HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)16	16:47	Surface	1	1	28.4	7.8	21.6	5.5	5.5	5.5	6.5	9.8	9.7
HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)16	16:47	Surface	1	2	28.4	7.9	21.6	5.5		5.5		10.6	
HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)16	16:47	Middle	2	1									
HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)16	16:47	Middle	2	2									
HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)16	16:47	Bottom	3	1	28.1	7.8	22.3	5.1	5.1	7.4	6.5	9.7	9.7
HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)16	16:47	Bottom	3	2	28.1	7.8	21.9	5.1		7.5		8.7	
HY/2012/08	2019/08/07	Mid-Ebb	SR4a	16:39	Surface	1	1	28.5	7.8	20.8	5.8	5.9	4.5	4.7	11.3	10.4
HY/2012/08	2019/08/07	Mid-Ebb	SR4a	16:39	Surface	1	2	28.5	7.9	20.4	5.9		4.6		10.6	
HY/2012/08	2019/08/07	Mid-Ebb	SR4a	16:39	Middle	2	1									
HY/2012/08	2019/08/07	Mid-Ebb	SR4a	16:39	Middle	2	2									
HY/2012/08	2019/08/07	Mid-Ebb	SR4a	16:39	Bottom	3	1	28.1	7.8	21.6	4.9	5.1	4.8	6.5	10.2	9.1
HY/2012/08	2019/08/07	Mid-Ebb	SR4a	16:39	Bottom	3	2	28.2	7.8	21.2	5.2		4.9		10.5	
HY/2012/08	2019/08/07	Mid-Ebb	SR4(N2)	16:35	Surface	1	1	28.5	7.8	20.9	5.6	5.7	6.5	8.1	9.8	9.1
HY/2012/08	2019/08/07	Mid-Ebb	SR4(N2)	16:35	Surface	1	2	28.5	7.8	20.6	5.7		6.4		10.7	
HY/2012/08	2019/08/07	Mid-Ebb	SR4(N2)	16:35	Middle	2	1									
HY/2012/08	2019/08/07	Mid-Ebb	SR4(N2)	16:35	Middle	2	2									
HY/2012/08	2019/08/07	Mid-Ebb	SR4(N2)	16:35	Bottom	3	1	28.3	7.8	21.5	5.0	5.0	9.8	7.2	8.5	7.2
HY/2012/08	2019/08/07	Mid-Ebb	SR4(N2)	16:35	Bottom	3	2	28.3	7.8	21.1	5.0		9.7		7.5	
HY/2012/08	2019/08/07	Mid-Ebb	IS8(N)	16:30	Surface	1	1	28.4	7.8	21.4	5.5	5.5	6.5	7.2	7.1	7.2
HY/2012/08	2019/08/07	Mid-Ebb	IS8(N)	16:30	Surface	1	2	28.4	7.9	21.0	5.5		6.5		6.1	
HY/2012/08	2019/08/07	Mid-Ebb	IS8(N)	16:30	Middle	2	1									
HY/2012/08	2019/08/07	Mid-Ebb	IS8(N)	16:30	Middle	2	2									
HY/2012/08	2019/08/07	Mid-Ebb	IS8(N)	16:30	Bottom	3	1	28.1	7.8	22.2	5.0	5.0	7.9	7.2	7.4	7.2
HY/2012/08	2019/08/07	Mid-Ebb	IS8(N)	16:30	Bottom	3	2	28.1	7.9	21.8	5.0		7.9		8.1	
HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)9	16:22	Surface	1	1	27.6	7.8	25.1	4.5	4.5	3.3	4.3	7.6	4.9
HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)9	16:22	Surface	1	2	27.6	7.8	25.1	4.5		3.3		6.7	
HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)9	16:22	Middle	2	1									
HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)9	16:22	Middle	2	2									
HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)9	16:22	Bottom	3	1	28.0	7.8	21.0	7.0	7.0	5.3	7.2	6.7	7.2
HY/2012/08	2019/08/07	Mid-Ebb	IS(Mf)9	16:22	Bottom	3	2	28.0	7.8	21.0	7.0		5.3		6.6	

Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Level code	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
HY/2012/08	2019/08/07	Mid-Flood	CS(Mf)5	10:29	Surface	1	1	28.0	7.8	21.3	4.6	4.6	4.0	6.2	6.5	6.8
HY/2012/08	2019/08/07	Mid-Flood	CS(Mf)5	10:29	Surface	1	2	27.6	7.8	21.3	4.6		4.0		5.8	
HY/2012/08	2019/08/07	Mid-Flood	CS(Mf)5	10:29	Middle	2	1	27.6	7.8	24.6	4.6		4.0		6.7	
HY/2012/08	2019/08/07	Mid-Flood	CS(Mf)5	10:29	Middle	2	2	27.6	7.8	24.2	4.6	4.0	6.8			
HY/2012/08	2019/08/07	Mid-Flood	CS(Mf)5	10:29	Bottom	3	1	27.5	7.8	26.5	4.5	4.5	10.6	7.0		
HY/2012/08	2019/08/07	Mid-Flood	CS(Mf)5	10:29	Bottom	3	2	27.4	7.8	26.0	4.5		10.6	7.9		
HY/2012/08	2019/08/07	Mid-Flood	CS(Mf)3(N)	11:19	Surface	1	1	28.2	7.7	19.8	5.0	5.1	5.1	5.8	9.1	9.7
HY/2012/08	2019/08/07	Mid-Flood	CS(Mf)3(N)	11:19	Surface	1	2	28.4	7.8	19.2	5.3		5.2		8.1	
HY/2012/08	2019/08/07	Mid-Flood	CS(Mf)3(N)	11:19	Middle	2	1	28.2	7.7	19.9	5.0		6.0		10.5	
HY/2012/08	2019/08/07	Mid-Flood	CS(Mf)3(N)	11:19	Middle	2	2	28.2	7.8	19.5	5.0	6.1	9.9			
HY/2012/08	2019/08/07	Mid-Flood	CS(Mf)3(N)	11:19	Bottom	3	1	28.3	7.7	20.1	5.2	5.2	6.2	10.7		
HY/2012/08	2019/08/07	Mid-Flood	CS(Mf)3(N)	11:19	Bottom	3	2	28.2	7.8	19.6	5.1		6.2	9.8		
HY/2012/08	2019/08/07	Mid-Flood	IS(Mf)16	12:23	Surface	1	1	28.5	7.8	20.7	5.6	5.6	5.9	8.1	8.7	7.9
HY/2012/08	2019/08/07	Mid-Flood	IS(Mf)16	12:23	Surface	1	2	28.5	7.9	20.3	5.6		5.9		7.7	
HY/2012/08	2019/08/07	Mid-Flood	IS(Mf)16	12:23	Middle	2	1									
HY/2012/08	2019/08/07	Mid-Flood	IS(Mf)16	12:23	Middle	2	2									
HY/2012/08	2019/08/07	Mid-Flood	IS(Mf)16	12:23	Bottom	3	1	28.0	7.8	21.6	5.0	5.0	10.4	7.1		
HY/2012/08	2019/08/07	Mid-Flood	IS(Mf)16	12:23	Bottom	3	2	28.0	7.8	21.2	5.0		10.3	8.0		
HY/2012/08	2019/08/07	Mid-Flood	SR4a	12:32	Surface	1	1	28.6	7.7	20.4	5.5	5.6	3.6	5.2	9.2	9.2
HY/2012/08	2019/08/07	Mid-Flood	SR4a	12:32	Surface	1	2	28.6	7.8	20.1	5.6		3.6		8.2	
HY/2012/08	2019/08/07	Mid-Flood	SR4a	12:32	Middle	2	1									
HY/2012/08	2019/08/07	Mid-Flood	SR4a	12:32	Middle	2	2									
HY/2012/08	2019/08/07	Mid-Flood	SR4a	12:32	Bottom	3	1	28.0	7.7	21.7	4.5	4.5	6.7	9.6		
HY/2012/08	2019/08/07	Mid-Flood	SR4a	12:32	Bottom	3	2	28.0	7.8	21.3	4.5		6.7	9.9		
HY/2012/08	2019/08/07	Mid-Flood	SR4(N2)	12:36	Surface	1	1	28.5	7.7	20.4	5.5	5.6	3.6	3.9	10.2	9.3
HY/2012/08	2019/08/07	Mid-Flood	SR4(N2)	12:36	Surface	1	2	28.4	7.8	20.0	5.6		3.6		9.2	
HY/2012/08	2019/08/07	Mid-Flood	SR4(N2)	12:36	Middle	2	1									
HY/2012/08	2019/08/07	Mid-Flood	SR4(N2)	12:36	Middle	2	2									
HY/2012/08	2019/08/07	Mid-Flood	SR4(N2)	12:36	Bottom	3	1	28.2	7.7	20.7	5.3	5.4	4.1	8.4		
HY/2012/08	2019/08/07	Mid-Flood	SR4(N2)	12:36	Bottom	3	2	28.3	7.8	20.3	5.4		4.1	9.3		
HY/2012/08	2019/08/07	Mid-Flood	IS8(N)	12:41	Surface	1	1	28.3	7.7	20.8	5.2	5.2	5.6	7.6	9.7	9.1
HY/2012/08	2019/08/07	Mid-Flood	IS8(N)	12:41	Surface	1	2	28.3	7.8	20.4	5.2		5.6		9.3	
HY/2012/08	2019/08/07	Mid-Flood	IS8(N)	12:41	Middle	2	1									
HY/2012/08	2019/08/07	Mid-Flood	IS8(N)	12:41	Middle	2	2									
HY/2012/08	2019/08/07	Mid-Flood	IS8(N)	12:41	Bottom	3	1	28.3	7.7	21.0	5.1	5.2	9.5	8.4		
HY/2012/08	2019/08/07	Mid-Flood	IS8(N)	12:41	Bottom	3	2	28.2	7.8	20.5	5.2		9.5	8.8		
HY/2012/08	2019/08/07	Mid-Flood	IS(Mf)9	12:49	Surface	1	1	28.4	7.7	20.7	5.7	5.7	7.0	8.1	8.6	6.4
HY/2012/08	2019/08/07	Mid-Flood	IS(Mf)9	12:49	Surface	1	2	28.4	7.8	20.3	5.7		7.0		8.3	
HY/2012/08	2019/08/07	Mid-Flood	IS(Mf)9	12:49	Middle	2	1									
HY/2012/08	2019/08/07	Mid-Flood	IS(Mf)9	12:49	Middle	2	2									
HY/2012/08	2019/08/07	Mid-Flood	IS(Mf)9	12:49	Bottom	3	1	28.3	7.7	20.8	5.3	5.4	9.3	8.6		
HY/2012/08	2019/08/07	Mid-Flood	IS(Mf)9	12:49	Bottom	3	2	28.3	7.8	20.5	5.4		9.2	8.6		

Note: Indicates Exceedance of Action Level  
Indicates Exceedance of Limit Level



**Key**

- Control / Far Field Station
- Impact Station
- Sensitive Receiver Station
- Site Boundary

WQMS	X	Y
<b>Impact Station</b>		
IS8(N)	814413	818570
IS(Mf)9	813273	818850
IS(Mf)16	814328	819497
<b>Control / Far Field Station</b>		
CS(Mf)5	817990	821129
CS(Mf)3(N)	808814	822355
<b>Sensitive Receiver Station</b>		
SR4a	815247	818067
SR4(N2)	814688	817996

Locations of Water Quality Monitoring Stations

Email  
message

**Environmental  
Resources  
Management**

**To** Ramboll Hong Kong Limited (ENPO)

**From** ERM- Hong Kong, Limited

**Ref/Project number** Contract No. HY/2012/07  
Tuen Mun – Chek Lap Kok Link – Southern  
Connection Viaduct Section

**Subject** Notification of Exceedance for Marine Water  
Quality Impact Monitoring

**Date** 20 August 2019

2507,  
25/F One Harbourfront,  
18 Tak Fung Street,  
Hung Hom, Hong Kong  
Telephone: (852) 2271 3113  
Facsimile: (852) 2723 5660  
E-mail: jasmine.ng@erm.com



**ERM**

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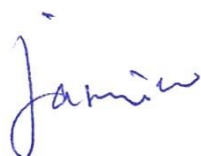
Dear Sir/ Madam,

Please find attached the Notification of Exceedance (NOE) of the following  
Log no.:

Action Level Exceedance  
0215660\_14 August 2019\_ Bottom DO\_E\_Station IS(Mf)16

A total of one (1) exceedance were recorded on 14 August 2019.

Regards,



Dr Jasmine Ng  
*Environmental Team Leader*

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**ERM-Hong Kong, Limited**

**CONTRACT NO. HY/2012/07**

**TUEN MUN – CHEK LAP KOK LINK –  
SOUTHERN CONNECTION VIADUCT SECTION**

*Marine Water Quality Impact Monitoring*

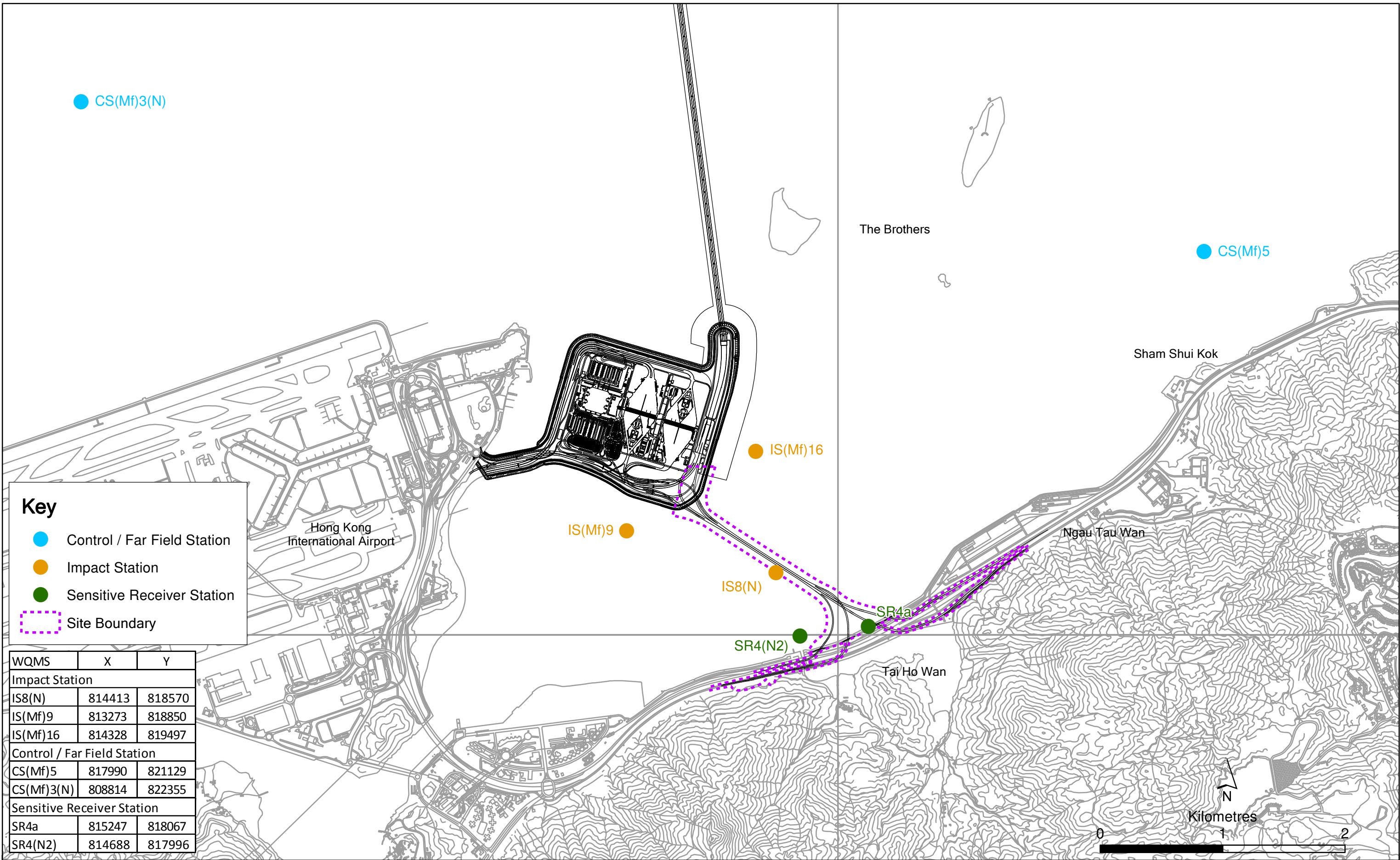
**Notification of Exceedance**

<b>Log No.</b>	<p><u>Action Level Exceedance</u> 0215660_14 August 2019_ Bottom DO_E_Station IS(Mf)16</p> <p>[Total No. of Exceedance = 1]</p>	
<b>Date</b>	<p>14 August 2019 (Measured) 19 August (Results obtained from ENPO Website)</p>	
<b>Monitoring Station</b>	<p>CS(Mf)5, SR4a, SR4(N2), IS8(N), IS(Mf)16, IS(Mf)9, CS(Mf)3(N)</p>	
<b>Parameter(s) with Exceedance(s)</b>	<p>Bottom-depth Dissolved Oxygen (DO)</p>	
<b>Action Levels for DO</b>	Bottom-depth DO	4.7 mg/L
<b>Limit Levels for DO</b>	Bottom-depth DO	3.6 mg/L
<b>Measured Levels</b>	<p><u>Action Level Exceedance</u> 1. Mid-ebb at IS(Mf)16 (Bottom-depth DO = 4.6 mg/L)</p>	
<b>Works Undertaken (at the time of monitoring event)</b>	<p>No marine works were undertaken on 14 August 2019.</p>	
<b>Possible Reason for Action or Limit Level Exceedance(s)</b>	<p>The exceedance of bottom-depth DO is unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> <li>• No marine works were undertaken on 14 August 2019.</li> <li>• The bottom-depth DO pattern at the station with exceedance was similar to the control stations where the bottom-depth DO levels were generally lower. In addition, lower bottom-depth DO levels may possibly caused by the stratification of seawater during summer when the freshwater discharged from the Pearl River tended to form a surface layer of lower salinity water, which is probably responsible for the lower Salinity recorded at the surface and middle levels compared to the higher Salinity recorded at the bottom level of the monitoring stations. The stratification of seawater in the water column is likely a contributing factor to the results of lower levels of DO at the bottom level. The stratification of seawater in the water column is likely a contributing factor to the results of lower levels of DO at the bottom level.</li> <li>• There are no discharge of waste water from the landside works area under this Contract.</li> </ul>	
<b>Actions Taken/ To Be Taken</b>	<p>No immediate action is considered necessary. The ET will monitor for future trends in exceedances.</p>	
<b>Remarks</b>	<p>The monitoring results on 14 August 2019 and locations of water quality monitoring stations are attached.</p>	

Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Level Code	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity
HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)5	12:46	Surface	1	1	30.1	8.0	18.4	6.1	5.6	3.0	5.1
HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)5	12:46	Surface	1	2	30.0	8.0	18.4	6.1		3.0	
HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)5	12:46	Middle	2	1	29.3	7.9	21.1	5.0		4.5	
HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)5	12:46	Middle	2	2	29.3	7.9	21.2	5.0		4.6	
HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)5	12:46	Bottom	3	1	28.0	7.9	26.6	3.8	3.8	7.7	
HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)5	12:46	Bottom	3	2	28.0	7.9	26.6	3.8		7.6	
HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)3(N)	12:03	Surface	1	1	30.6	7.9	16.4	6.1	5.8	2.9	3.8
HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)3(N)	12:03	Surface	1	2	30.6	7.9	16.5	6.1		2.9	
HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)3(N)	12:03	Middle	2	1	29.7	7.9	18.9	5.4		3.9	
HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)3(N)	12:03	Middle	2	2	29.7	7.9	18.9	5.4		3.8	
HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)3(N)	12:03	Bottom	3	1	29.6	7.9	19.7	5.3	5.3	4.5	
HY/2012/08	2019/08/14	Mid-Ebb	CS(Mf)3(N)	12:03	Bottom	3	2	29.7	7.9	19.6	5.3		4.5	
HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)16	11:16	Surface	1	1	30.1	8.0	18.5	6.2	6.2	4.8	7.4
HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)16	11:16	Surface	1	2	30.2	8.0	18.5	6.2		4.8	
HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)16	11:16	Middle	2	1							
HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)16	11:16	Middle	2	2							
HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)16	11:16	Bottom	3	1	28.6	7.9	24.5	4.6	4.6	9.9	
HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)16	11:16	Bottom	3	2	28.6	7.9	24.4	4.6		9.9	
HY/2012/08	2019/08/14	Mid-Ebb	SR4a	11:05	Surface	1	1	30.4	8.0	17.4	6.4	6.4	3.2	4.1
HY/2012/08	2019/08/14	Mid-Ebb	SR4a	11:05	Surface	1	2	30.4	8.0	17.3	6.4		3.2	
HY/2012/08	2019/08/14	Mid-Ebb	SR4a	11:05	Middle	2	1							
HY/2012/08	2019/08/14	Mid-Ebb	SR4a	11:05	Middle	2	2							
HY/2012/08	2019/08/14	Mid-Ebb	SR4a	11:05	Bottom	3	1	30.0	7.9	18.6	5.6	5.6	4.9	
HY/2012/08	2019/08/14	Mid-Ebb	SR4a	11:05	Bottom	3	2	30.0	7.9	18.6	5.6		4.9	
HY/2012/08	2019/08/14	Mid-Ebb	SR4(N2)	11:00	Surface	1	1	30.5	8.0	17.4	6.3	6.3	3.3	5.8
HY/2012/08	2019/08/14	Mid-Ebb	SR4(N2)	11:00	Surface	1	2	30.5	8.0	17.4	6.3		3.3	
HY/2012/08	2019/08/14	Mid-Ebb	SR4(N2)	11:00	Middle	2	1							
HY/2012/08	2019/08/14	Mid-Ebb	SR4(N2)	11:00	Middle	2	2							
HY/2012/08	2019/08/14	Mid-Ebb	SR4(N2)	11:00	Bottom	3	1	30.0	7.9	18.8	5.6	5.6	8.2	
HY/2012/08	2019/08/14	Mid-Ebb	SR4(N2)	11:00	Bottom	3	2	30.0	7.9	18.8	5.6		8.2	
HY/2012/08	2019/08/14	Mid-Ebb	IS8(N)	10:55	Surface	1	1	30.4	8.0	18.2	6.1	6.1	9.9	11.0
HY/2012/08	2019/08/14	Mid-Ebb	IS8(N)	10:55	Surface	1	2	30.4	8.0	18.2	6.1		9.9	
HY/2012/08	2019/08/14	Mid-Ebb	IS8(N)	10:55	Middle	2	1							
HY/2012/08	2019/08/14	Mid-Ebb	IS8(N)	10:55	Middle	2	2							
HY/2012/08	2019/08/14	Mid-Ebb	IS8(N)	10:55	Bottom	3	1	29.9	8.0	19.0	5.6	5.6	12.2	
HY/2012/08	2019/08/14	Mid-Ebb	IS8(N)	10:55	Bottom	3	2	29.9	8.0	19.0	5.6		12.1	
HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)9	10:48	Surface	1	1	30.6	8.1	17.7	6.6	6.6	3.3	3.5
HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)9	10:48	Surface	1	2	30.6	8.1	17.7	6.6		3.3	
HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)9	10:48	Middle	2	1							
HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)9	10:48	Middle	2	2							
HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)9	10:48	Bottom	3	1	30.4	8.1	17.8	6.5	6.5	3.6	
HY/2012/08	2019/08/14	Mid-Ebb	IS(Mf)9	10:48	Bottom	3	2	30.4	8.1	17.8	6.4		3.6	

Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Level Code	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity
HY/2012/08	2019/08/14	Mid-Flood	CS(Mf)5	4:38	Surface	1	1	30.1	7.9	16.8	6.2	6.1	3.2	2.4
HY/2012/08	2019/08/14	Mid-Flood	CS(Mf)5	4:38	Surface	1	2	30.1	7.9	16.8	6.2		3.2	
HY/2012/08	2019/08/14	Mid-Flood	CS(Mf)5	4:38	Middle	2	1	29.9	7.9	19.2	6.0		2.0	
HY/2012/08	2019/08/14	Mid-Flood	CS(Mf)5	4:38	Middle	2	2	29.9	7.9	19.2	6.0		2.0	
HY/2012/08	2019/08/14	Mid-Flood	CS(Mf)5	4:38	Bottom	3	1	28.5	7.9	25.3	4.7	4.7	2.0	
HY/2012/08	2019/08/14	Mid-Flood	CS(Mf)5	4:38	Bottom	3	2	28.5	7.9	25.3	4.7		2.0	
HY/2012/08	2019/08/14	Mid-Flood	CS(Mf)3(N)	5:56	Surface	1	1	29.9	7.9	16.6	6.0	6.0	4.2	5.9
HY/2012/08	2019/08/14	Mid-Flood	CS(Mf)3(N)	5:56	Surface	1	2	29.9	7.9	16.6	6.0		4.2	
HY/2012/08	2019/08/14	Mid-Flood	CS(Mf)3(N)	5:56	Middle	2	1	29.9	7.9	17.1	5.9		4.0	
HY/2012/08	2019/08/14	Mid-Flood	CS(Mf)3(N)	5:56	Middle	2	2	29.9	7.9	17.1	5.9		4.0	
HY/2012/08	2019/08/14	Mid-Flood	CS(Mf)3(N)	5:56	Bottom	3	1	29.7	7.9	18.9	5.5	5.5	9.4	
HY/2012/08	2019/08/14	Mid-Flood	CS(Mf)3(N)	5:56	Bottom	3	2	29.7	7.9	18.9	5.4		9.3	
HY/2012/08	2019/08/14	Mid-Flood	IS(Mf)16	6:18	Surface	1	1	30.0	8.0	18.0	6.2	6.2	3.5	3.5
HY/2012/08	2019/08/14	Mid-Flood	IS(Mf)16	6:18	Surface	1	2	30.0	8.0	18.1	6.2		3.5	
HY/2012/08	2019/08/14	Mid-Flood	IS(Mf)16	6:18	Middle	2	1							
HY/2012/08	2019/08/14	Mid-Flood	IS(Mf)16	6:18	Middle	2	2							
HY/2012/08	2019/08/14	Mid-Flood	IS(Mf)16	6:18	Bottom	3	1	30.0	8.0	18.0	6.2	6.2	3.6	
HY/2012/08	2019/08/14	Mid-Flood	IS(Mf)16	6:18	Bottom	3	2	30.0	8.0	18.0	6.2		3.5	
HY/2012/08	2019/08/14	Mid-Flood	SR4a	6:27	Surface	1	1	30.2	8.0	17.5	5.9	6.0	4.1	5.6
HY/2012/08	2019/08/14	Mid-Flood	SR4a	6:27	Surface	1	2	30.2	8.0	17.5	6.0		4.1	
HY/2012/08	2019/08/14	Mid-Flood	SR4a	6:27	Middle	2	1							
HY/2012/08	2019/08/14	Mid-Flood	SR4a	6:27	Middle	2	2							
HY/2012/08	2019/08/14	Mid-Flood	SR4a	6:27	Bottom	3	1	29.9	7.9	18.7	5.3	5.3	7.1	
HY/2012/08	2019/08/14	Mid-Flood	SR4a	6:27	Bottom	3	2	29.9	7.9	18.7	5.3		7.1	
HY/2012/08	2019/08/14	Mid-Flood	SR4(N2)	6:32	Surface	1	1	30.1	8.0	17.2	6.1	6.1	3.5	4.4
HY/2012/08	2019/08/14	Mid-Flood	SR4(N2)	6:32	Surface	1	2	30.1	8.0	17.2	6.1		3.4	
HY/2012/08	2019/08/14	Mid-Flood	SR4(N2)	6:32	Middle	2	1							
HY/2012/08	2019/08/14	Mid-Flood	SR4(N2)	6:32	Middle	2	2							
HY/2012/08	2019/08/14	Mid-Flood	SR4(N2)	6:32	Bottom	3	1	30.0	8.0	18.0	5.9	5.9	5.4	
HY/2012/08	2019/08/14	Mid-Flood	SR4(N2)	6:32	Bottom	3	2	30.0	8.0	18.0	5.9		5.3	
HY/2012/08	2019/08/14	Mid-Flood	IS8(N)	6:38	Surface	1	1	30.0	8.0	17.3	6.1	6.1	4.1	4.7
HY/2012/08	2019/08/14	Mid-Flood	IS8(N)	6:38	Surface	1	2	30.0	8.0	17.3	6.1		4.2	
HY/2012/08	2019/08/14	Mid-Flood	IS8(N)	6:38	Middle	2	1							
HY/2012/08	2019/08/14	Mid-Flood	IS8(N)	6:38	Middle	2	2							
HY/2012/08	2019/08/14	Mid-Flood	IS8(N)	6:38	Bottom	3	1	30.0	8.0	17.5	6.0	6.0	5.3	
HY/2012/08	2019/08/14	Mid-Flood	IS8(N)	6:38	Bottom	3	2	30.0	8.0	17.5	6.0		5.3	
HY/2012/08	2019/08/14	Mid-Flood	IS(Mf)9	6:45	Surface	1	1	29.9	8.0	17.3	6.1	6.1	4.8	5.9
HY/2012/08	2019/08/14	Mid-Flood	IS(Mf)9	6:45	Surface	1	2	29.9	8.0	17.3	6.1		4.9	
HY/2012/08	2019/08/14	Mid-Flood	IS(Mf)9	6:45	Middle	2	1							
HY/2012/08	2019/08/14	Mid-Flood	IS(Mf)9	6:45	Middle	2	2							
HY/2012/08	2019/08/14	Mid-Flood	IS(Mf)9	6:45	Bottom	3	1	29.9	8.0	17.8	6.1	6.1	6.9	
HY/2012/08	2019/08/14	Mid-Flood	IS(Mf)9	6:45	Bottom	3	2	29.9	8.0	17.8	6.1		7.0	

Note: Indicates Exceedance of Action Level  
Indicates Exceedance of Limit Level



**Key**

- Control / Far Field Station
- Impact Station
- Sensitive Receiver Station
- Site Boundary

WQMS	X	Y
<b>Impact Station</b>		
IS8(N)	814413	818570
IS(Mf)9	813273	818850
IS(Mf)16	814328	819497
<b>Control / Far Field Station</b>		
CS(Mf)5	817990	821129
CS(Mf)3(N)	808814	822355
<b>Sensitive Receiver Station</b>		
SR4a	815247	818067
SR4(N2)	814688	817996

Locations of Water Quality Monitoring Stations

Email  
message

Environmental  
Resources  
Management

**To** Ramboll Hong Kong Limited (ENPO)

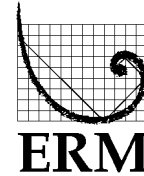
**From** ERM- Hong Kong, Limited

**Ref/Project number** Contract No. HY/2012/07  
Tuen Mun – Chek Lap Kok Link – Southern  
Connection Viaduct Section

**Subject** Notification of Exceedance for Marine Water  
Quality Impact Monitoring

**Date** 3 September 2019

2507,  
25/F One Harbourfront,  
18 Tak Fung Street,  
Hung Hom, Hong Kong  
Telephone: (852) 2271 3113  
Facsimile: (852) 2723 5660  
E-mail: jasmine.ng@erm.com



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Dear Sir/ Madam,

Please find attached the Notification of Exceedance (NOE) of the following  
Log no.:

Action Level Exceedance

0215660\_19 August 2019\_ Surface & Middle DO\_E\_Station IS(Mf)16  
0215660\_19 August 2019\_ Bottom DO\_E\_Station IS(Mf)16  
0215660\_19 August 2019\_ Surface & Middle DO\_E\_Station SR4a  
0215660\_19 August 2019\_ Bottom DO\_E\_Station SR4a  
0215660\_19 August 2019\_ Surface & Middle DO\_E\_Station SR4(N2)  
0215660\_19 August 2019\_ Bottom DO\_E\_Station SR4(N2)  
0215660\_19 August 2019\_ Bottom DO\_E\_Station IS8(N)

A total of seven (7) exceedances were recorded on 19 August 2019.

Regards,

Dr Jasmine Ng  
*Environmental Team Leader*

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**ERM-Hong Kong, Limited**

**CONTRACT NO. HY/2012/07**

**TUEN MUN – CHEK LAP KOK LINK –  
SOUTHERN CONNECTION VIADUCT SECTION**

*Marine Water Quality Impact Monitoring*

**Notification of Exceedance**

<b>Log No.</b>	<p style="text-align: center;"><u>Action Level Exceedance</u>            0215660_19 August 2019_ Surface &amp; Middle DO_E_Station IS(Mf)16            0215660_19 August 2019_ Bottom DO_E_Station IS(Mf)16            0215660_19 August 2019_ Surface &amp; Middle DO_E_Station SR4a            0215660_19 August 2019_ Bottom DO_E_Station SR4a            0215660_19 August 2019_ Surface &amp; Middle DO_E_Station SR4(N2)            0215660_19 August 2019_ Bottom DO_E_Station SR4(N2)            0215660_19 August 2019_ Bottom DO_E_Station IS8(N)</p> <p style="text-align: center;">[Total No. of Exceedance = 7]</p>	
<b>Date</b>	<p style="text-align: center;">19 August 2019 (Measured)            30 August 2019 (Results obtained from ENPO Website)</p>	
<b>Monitoring Station</b>	<p style="text-align: center;">CS(Mf)5, SR4a, SR4(N2), IS8(N), IS(Mf)16, IS(Mf)9, CS(Mf)3(N)</p>	
<b>Parameter(s) with Exceedance(s)</b>	<p style="text-align: center;">Surface and Middle-depth Dissolved Oxygen (DO)            Bottom-depth Dissolved Oxygen (DO)</p>	
<b>Action Levels for DO</b>	Surface and Middle-depth DO	5.0 mg/L
	Bottom-depth DO	4.7 mg/L
<b>Limit Levels for DO</b>	Surface and Middle-depth DO	4.2 mg/L
	Bottom-depth DO	3.6 mg/L
<b>Measured Levels</b>	<p><u>Action Level Exceedance</u></p> <ol style="list-style-type: none"> <li>1. Mid-ebb at IS(Mf)16 (Surface &amp; Middle-depth DO = 4.8 mg/L)</li> <li>2. Mid-ebb at IS(Mf)16 (Bottom-depth DO = 4.3 mg/L)</li> <li>3. Mid-ebb at SR4a (Surface &amp; Middle-depth DO = 4.7 mg/L)</li> <li>4. Mid-ebb at SR4a (Bottom-depth DO = 4.5 mg/L)</li> <li>5. Mid-ebb at SR4(N2) (Surface &amp; Middle-depth DO = 4.8 mg/L)</li> <li>6. Mid-ebb at SR4(N2) (Bottom-depth DO = 4.6 mg/L)</li> <li>7. Mid-ebb at IS8(N) (Bottom-depth DO = 4.6 mg/L)</li> </ol>	
<b>Works Undertaken (at the time of monitoring event)</b>	<p>No marine works were undertaken on 19 August 2019.</p>	
<b>Possible Reason for Action or Limit Level Exceedance(s)</b>	<p>The exceedance of DO is unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> <li>• No marine works were undertaken on 19 August 2019.</li> <li>• The DO pattern at the station with exceedance was similar to the control station CS(Mf)5 during ebb tide where the bottom-depth DO levels are generally lower. In addition, lower bottom-depth DO levels may possibly caused by the stratification of seawater during summer when the freshwater discharged from the Pearl River tended to form a surface layer of lower salinity water, which is probably responsible for the lower Salinity recorded at the surface and middle levels compared to the higher Salinity recorded at the bottom level of the monitoring stations. The stratification of seawater in the water column is likely a contributing factor to the results of lower levels of DO at the bottom level. The stratification of seawater in the water column is likely a contributing factor to the results of lower levels of DO at the bottom level.</li> <li>• There are no discharge of waste water from the landside works area under this Contract.</li> </ul>	

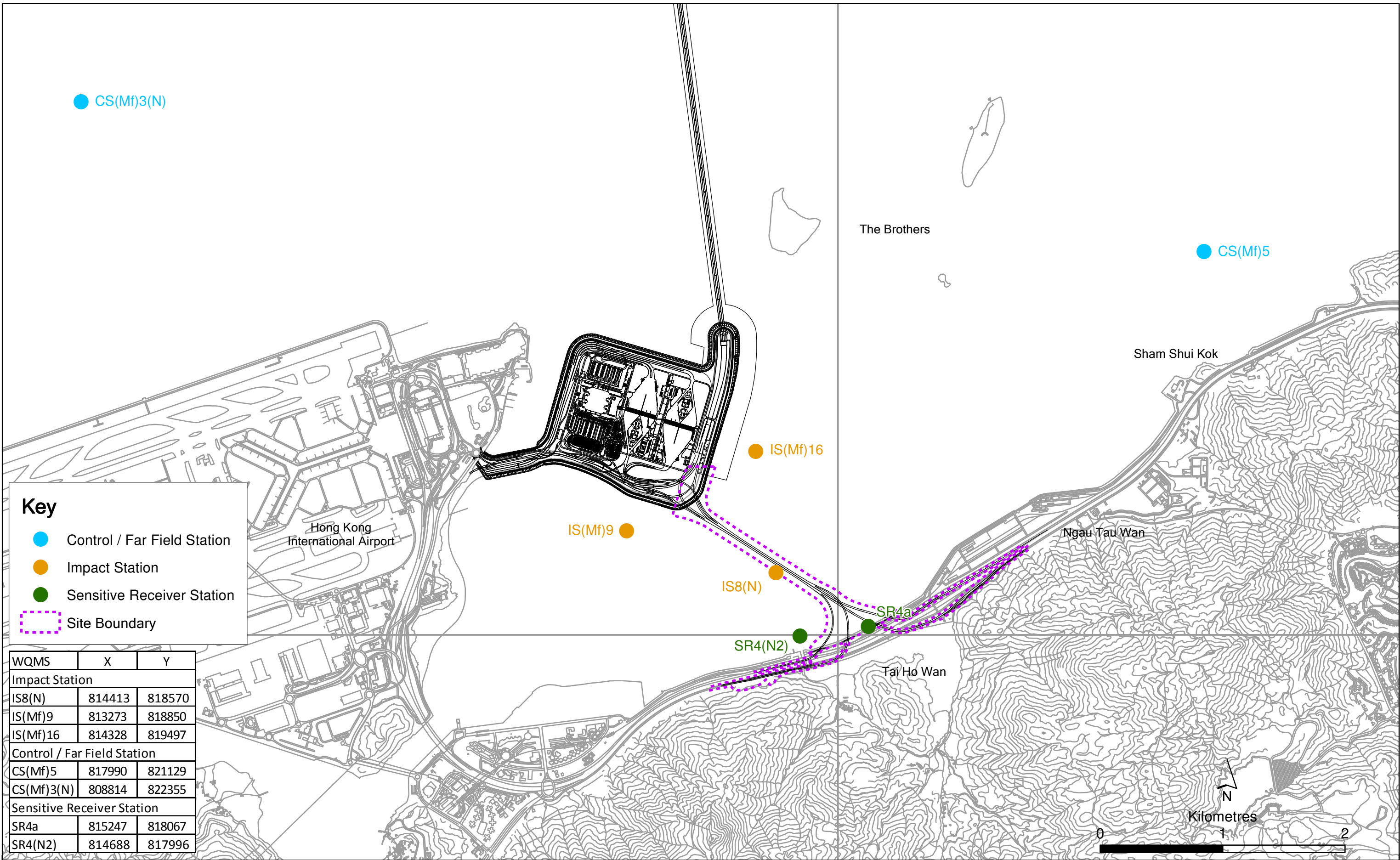
<b>Actions Taken/ To Be Taken</b>	No immediate action is considered necessary. The ET will monitor for future trends in exceedances.
<b>Remarks</b>	The monitoring results on 19 August 2019 and locations of water quality monitoring stations are attached.

Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Level Code	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity
HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)5	15:37	Surface	1	1	28.2	8.0	22.2	5.0	4.6	3.8	8.9
HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)5	15:37	Surface	1	2	28.9	7.9	21.8	5.0		4.1	
HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)5	15:37	Middle	2	1	26.6	8.0	26.8	4.1		8.2	
HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)5	15:37	Middle	2	2	27.3	7.9	26.4	4.1		8.0	
HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)5	15:37	Bottom	3	1	25.8	8.1	30.1	3.8	3.8	14.4	
HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)5	15:37	Bottom	3	2	26.5	7.9	29.7	3.7		14.6	
HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)3(N)	14:43	Surface	1	1	28.9	8.0	19.6	5.6	5.3	3.0	4.9
HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)3(N)	14:43	Surface	1	2	29.7	7.9	19.2	5.5		3.1	
HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)3(N)	14:43	Middle	2	1	28.0	8.0	22.9	5.1		4.8	
HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)3(N)	14:43	Middle	2	2	28.8	7.9	22.4	5.1		4.9	
HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)3(N)	14:43	Bottom	3	1	27.5	8.0	24.5	4.9	4.8	6.5	
HY/2012/08	2019/08/19	Mid-Ebb	CS(Mf)3(N)	14:43	Bottom	3	2	28.3	7.9	24.0	4.7		6.9	
HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)16	13:56	Surface	1	1	27.8	8.1	23.3	4.8	4.8	7.8	6.4
HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)16	13:56	Surface	1	2	28.6	7.9	22.9	4.8		7.2	
HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)16	13:56	Middle	2	1							
HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)16	13:56	Middle	2	2							
HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)16	13:56	Bottom	3	1	26.2	8.0	28.5	4.4	4.3	5.2	
HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)16	13:56	Bottom	3	2	27.0	7.9	28.1	4.2		5.4	
HY/2012/08	2019/08/19	Mid-Ebb	SR4a	13:47	Surface	1	1	27.8	8.0	22.9	4.6	4.7	8.6	10.1
HY/2012/08	2019/08/19	Mid-Ebb	SR4a	13:47	Surface	1	2	28.5	7.9	22.6	4.7		8.2	
HY/2012/08	2019/08/19	Mid-Ebb	SR4a	13:47	Middle	2	1							
HY/2012/08	2019/08/19	Mid-Ebb	SR4a	13:47	Middle	2	2							
HY/2012/08	2019/08/19	Mid-Ebb	SR4a	13:47	Bottom	3	1	27.6	8.0	23.7	4.5	4.5	11.9	
HY/2012/08	2019/08/19	Mid-Ebb	SR4a	13:47	Bottom	3	2	28.4	7.9	23.3	4.5		11.8	
HY/2012/08	2019/08/19	Mid-Ebb	SR4(N2)	13:42	Surface	1	1	28.0	8.0	22.3	4.7	4.8	10.0	10.8
HY/2012/08	2019/08/19	Mid-Ebb	SR4(N2)	13:42	Surface	1	2	28.7	7.9	22.0	4.8		10.0	
HY/2012/08	2019/08/19	Mid-Ebb	SR4(N2)	13:42	Middle	2	1							
HY/2012/08	2019/08/19	Mid-Ebb	SR4(N2)	13:42	Middle	2	2							
HY/2012/08	2019/08/19	Mid-Ebb	SR4(N2)	13:42	Bottom	3	1	27.8	8.0	22.8	4.6	4.6	11.7	
HY/2012/08	2019/08/19	Mid-Ebb	SR4(N2)	13:42	Bottom	3	2	28.6	7.9	22.5	4.6		11.6	
HY/2012/08	2019/08/19	Mid-Ebb	IS8(N)	13:36	Surface	1	1	27.9	8.1	22.9	5.1	5.1	10.6	10.7
HY/2012/08	2019/08/19	Mid-Ebb	IS8(N)	13:36	Surface	1	2	28.6	7.9	22.7	5.1		10.4	
HY/2012/08	2019/08/19	Mid-Ebb	IS8(N)	13:36	Middle	2	1							
HY/2012/08	2019/08/19	Mid-Ebb	IS8(N)	13:36	Middle	2	2							
HY/2012/08	2019/08/19	Mid-Ebb	IS8(N)	13:36	Bottom	3	1	27.6	8.1	23.8	4.6	4.6	10.9	
HY/2012/08	2019/08/19	Mid-Ebb	IS8(N)	13:36	Bottom	3	2	28.3	7.9	23.5	4.5		10.9	
HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)9	13:30	Surface	1	1	28.7	8.0	21.4	5.6	5.6	3.9	4.6
HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)9	13:30	Surface	1	2	29.5	8.0	21.1	5.6		4.1	
HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)9	13:30	Middle	2	1							
HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)9	13:30	Middle	2	2							
HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)9	13:30	Bottom	3	1	28.4	8.0	21.6	5.5	5.5	5.2	
HY/2012/08	2019/08/19	Mid-Ebb	IS(Mf)9	13:30	Bottom	3	2	29.1	8.0	21.3	5.5		5.1	



Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Level Code	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity
HY/2012/08	2019/08/19	Mid-flood	CS(Mf)5	7:56	Surface	1	1	28.8	7.8	20.1	5.0	4.6	3.3	6.6
HY/2012/08	2019/08/19	Mid-flood	CS(Mf)5	7:56	Surface	1	2	28.0	8.0	20.4	5.0		3.3	
HY/2012/08	2019/08/19	Mid-flood	CS(Mf)5	7:56	Middle	2	1	27.6	7.8	25.7	4.2		4.9	
HY/2012/08	2019/08/19	Mid-flood	CS(Mf)5	7:56	Middle	2	2	26.8	8.0	26.2	4.2		4.9	
HY/2012/08	2019/08/19	Mid-flood	CS(Mf)5	7:56	Bottom	3	1	26.7	7.8	29.5	3.7	3.8	11.5	
HY/2012/08	2019/08/19	Mid-flood	CS(Mf)5	7:56	Bottom	3	2	25.9	8.0	29.9	3.8		11.5	
HY/2012/08	2019/08/19	Mid-flood	CS(Mf)3(N)	8:44	Surface	1	1	28.4	8.0	17.0	5.5	5.4	3.7	4.3
HY/2012/08	2019/08/19	Mid-flood	CS(Mf)3(N)	8:44	Surface	1	2	29.2	7.9	16.7	5.5		3.7	
HY/2012/08	2019/08/19	Mid-flood	CS(Mf)3(N)	8:44	Middle	2	1	28.2	8.0	19.2	5.4		4.6	
HY/2012/08	2019/08/19	Mid-flood	CS(Mf)3(N)	8:44	Middle	2	2	29.0	7.8	18.9	5.3		4.7	
HY/2012/08	2019/08/19	Mid-flood	CS(Mf)3(N)	8:44	Bottom	3	1	28.2	8.0	19.4	5.4	5.4	4.6	
HY/2012/08	2019/08/19	Mid-flood	CS(Mf)3(N)	8:44	Bottom	3	2	29.0	7.9	19.1	5.3		4.7	
HY/2012/08	2019/08/19	Mid-flood	IS(Mf)16	9:28	Surface	1	1	28.0	8.1	21.6	5.2	5.2	4.5	6.0
HY/2012/08	2019/08/19	Mid-flood	IS(Mf)16	9:28	Surface	1	2	28.7	7.9	21.3	5.2		4.9	
HY/2012/08	2019/08/19	Mid-flood	IS(Mf)16	9:28	Middle	2	1							
HY/2012/08	2019/08/19	Mid-flood	IS(Mf)16	9:28	Middle	2	2							
HY/2012/08	2019/08/19	Mid-flood	IS(Mf)16	9:28	Bottom	3	1	27.8	8.1	22.2	5.3	5.2	7.4	
HY/2012/08	2019/08/19	Mid-flood	IS(Mf)16	9:28	Bottom	3	2	28.6	8.0	21.8	5.1		7.3	
HY/2012/08	2019/08/19	Mid-flood	SR4a	9:37	Surface	1	1	28.0	8.1	21.2	5.2	5.2	4.7	6.6
HY/2012/08	2019/08/19	Mid-flood	SR4a	9:37	Surface	1	2	28.7	7.9	20.9	5.2		4.8	
HY/2012/08	2019/08/19	Mid-flood	SR4a	9:37	Middle	2	1							
HY/2012/08	2019/08/19	Mid-flood	SR4a	9:37	Middle	2	2							
HY/2012/08	2019/08/19	Mid-flood	SR4a	9:37	Bottom	3	1	27.9	8.1	21.9	4.9	4.9	8.2	
HY/2012/08	2019/08/19	Mid-flood	SR4a	9:37	Bottom	3	2	28.6	8.0	21.6	4.9		8.8	
HY/2012/08	2019/08/19	Mid-flood	SR4(N2)	9:42	Surface	1	1	28.0	8.1	21.1	5.4	5.4	4.4	4.9
HY/2012/08	2019/08/19	Mid-flood	SR4(N2)	9:42	Surface	1	2	28.8	7.9	20.7	5.3		4.4	
HY/2012/08	2019/08/19	Mid-flood	SR4(N2)	9:42	Middle	2	1							
HY/2012/08	2019/08/19	Mid-flood	SR4(N2)	9:42	Middle	2	2							
HY/2012/08	2019/08/19	Mid-flood	SR4(N2)	9:42	Bottom	3	1	28.0	8.1	21.2	5.5	5.5	5.9	
HY/2012/08	2019/08/19	Mid-flood	SR4(N2)	9:42	Bottom	3	2	28.7	7.9	20.8	5.5		5.0	
HY/2012/08	2019/08/19	Mid-flood	IS8(N)	9:49	Surface	1	1	28.0	8.1	21.1	5.2	5.2	5.3	7.0
HY/2012/08	2019/08/19	Mid-flood	IS8(N)	9:49	Surface	1	2	28.8	7.9	20.7	5.1		5.9	
HY/2012/08	2019/08/19	Mid-flood	IS8(N)	9:49	Middle	2	1							
HY/2012/08	2019/08/19	Mid-flood	IS8(N)	9:49	Middle	2	2							
HY/2012/08	2019/08/19	Mid-flood	IS8(N)	9:49	Bottom	3	1	27.8	8.1	22.0	5.1	5.1	8.5	
HY/2012/08	2019/08/19	Mid-flood	IS8(N)	9:49	Bottom	3	2	28.6	7.9	21.6	5.0		8.2	
HY/2012/08	2019/08/19	Mid-flood	IS(Mf)9	9:56	Surface	1	1	28.1	8.1	21.3	5.4	5.4	4.4	6.3
HY/2012/08	2019/08/19	Mid-flood	IS(Mf)9	9:56	Surface	1	2	28.9	7.9	20.9	5.4		4.7	
HY/2012/08	2019/08/19	Mid-flood	IS(Mf)9	9:56	Middle	2	1							
HY/2012/08	2019/08/19	Mid-flood	IS(Mf)9	9:56	Middle	2	2							
HY/2012/08	2019/08/19	Mid-flood	IS(Mf)9	9:56	Bottom	3	1	28.0	8.1	21.6	5.5	5.5	8.0	
HY/2012/08	2019/08/19	Mid-flood	IS(Mf)9	9:56	Bottom	3	2	28.7	7.9	21.3	5.5		8.1	

Note: Indicates Exceedance of Action Level  
Indicates Exceedance of Limit Level



**Key**

- Control / Far Field Station
- Impact Station
- Sensitive Receiver Station
- Site Boundary

WQMS	X	Y
<b>Impact Station</b>		
IS8(N)	814413	818570
IS(Mf)9	813273	818850
IS(Mf)16	814328	819497
<b>Control / Far Field Station</b>		
CS(Mf)5	817990	821129
CS(Mf)3(N)	808814	822355
<b>Sensitive Receiver Station</b>		
SR4a	815247	818067
SR4(N2)	814688	817996

Locations of Water Quality Monitoring Stations

Email  
message

**Environmental  
Resources  
Management**

**To** Ramboll Hong Kong Limited (ENPO)

**From** ERM- Hong Kong, Limited

**Ref/Project number** Contract No. HY/2012/07  
Tuen Mun – Chek Lap Kok Link – Southern  
Connection Viaduct Section

**Subject** Notification of Exceedance for Marine Water  
Quality Impact Monitoring

**Date** 3 September 2019

2507,  
25/F One Harbourfront,  
18 Tak Fung Street,  
Hung Hom, Hong Kong  
Telephone: (852) 2271 3113  
Facsimile: (852) 2723 5660  
E-mail: jasmine.ng@erm.com



**ERM**

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Dear Sir/ Madam,

Please find attached the Notification of Exceedance (NOE) of the following  
Log no.:

Action Level Exceedance

0215660\_28 August 2019\_ Surface & Middle DO\_E\_Station IS(Mf)16

0215660\_28 August 2019\_ Surface & Middle DO\_E\_Station SR4a

0215660\_28 August 2019\_ Bottom DO\_E\_Station SR4a

0215660\_28 August 2019\_ Surface & Middle DO\_E\_Station SR4(N2)

0215660\_28 August 2019\_ Surface & Middle DO\_E\_Station IS8(N)

0215660\_28 August 2019\_ Bottom DO\_E\_Station IS8(N)

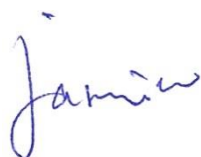
0215660\_28 August 2019\_ Bottom DO\_F\_Station SR4a

Limit Level Exceedance

0215660\_28 August 2019\_ Bottom DO\_E\_Station SR4(N2)

A total of eight (8) exceedances were recorded on 28 August 2019.

Regards,



Dr Jasmine Ng  
*Environmental Team Leader*

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/07

TUEN MUN – CHEK LAP KOK LINK –  
SOUTHERN CONNECTION VIADUCT SECTION

*Marine Water Quality Impact Monitoring*

**Notification of Exceedance**

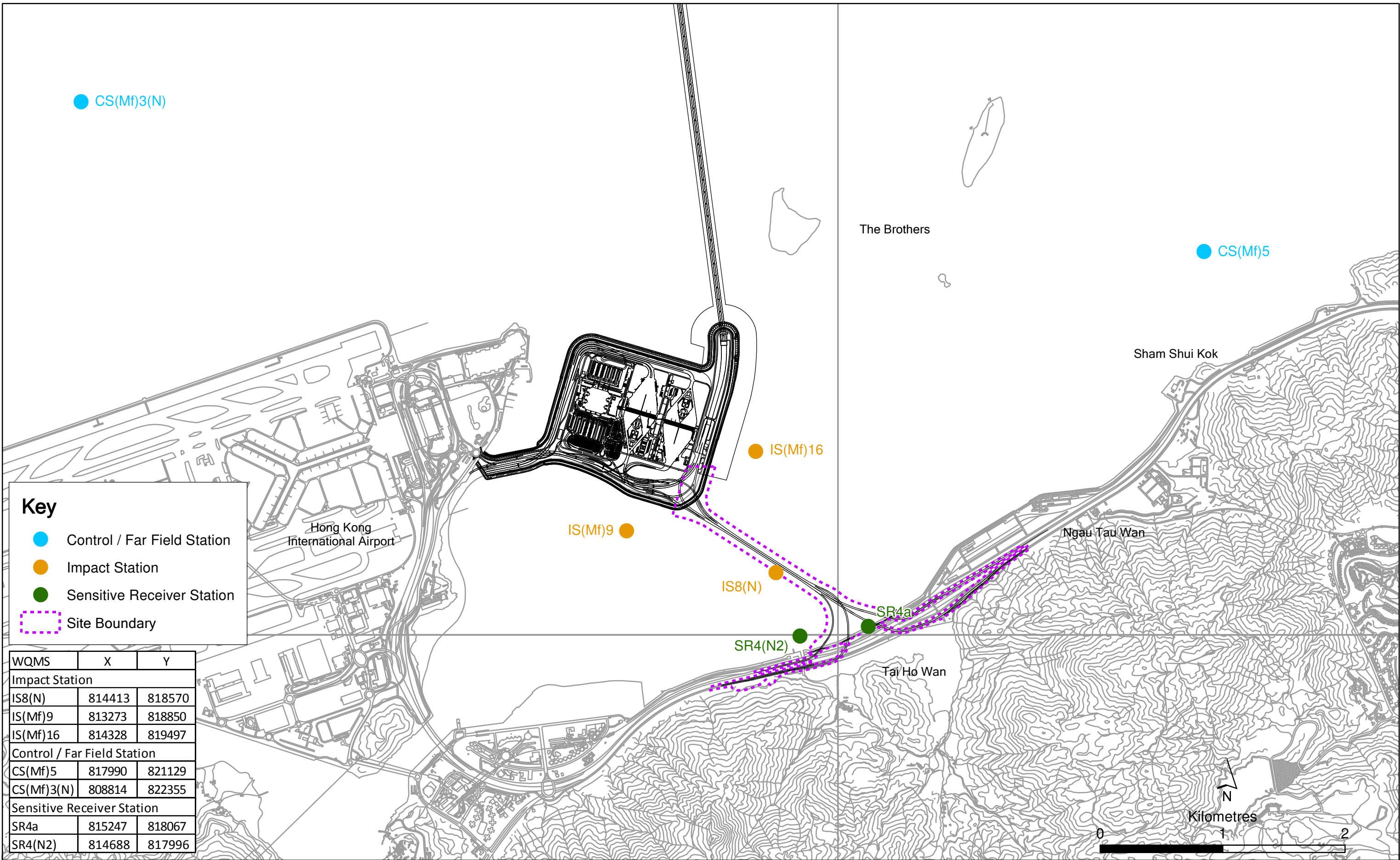
<b>Log No.</b>	<p style="text-align: center;"><u>Action Level Exceedance</u></p> <p style="text-align: center;">0215660_28 August 2019_ Surface &amp; Middle DO_E_Station IS(Mf)16 0215660_28 August 2019_ Surface &amp; Middle DO_E_Station SR4a 0215660_28 August 2019_ Bottom DO_E_Station SR4a 0215660_28 August 2019_ Surface &amp; Middle DO_E_Station SR4(N2) 0215660_28 August 2019_ Surface &amp; Middle DO_E_Station IS8(N) 0215660_28 August 2019_ Bottom DO_E_Station IS8(N) 0215660_28 August 2019_ Bottom DO_F_Station SR4a</p> <p style="text-align: center;"><u>Limit Level Exceedance</u></p> <p style="text-align: center;">0215660_28 August 2019_ Bottom DO_E_Station SR4(N2) [Total No. of Exceedance = 8]</p>	
<b>Date</b>	28 August 2019 (Measured) 2 September 2019 (Results obtained from ENPO Website)	
<b>Monitoring Station</b>	CS(Mf)5, SR4a, SR4(N2), IS8(N), IS(Mf)16, IS(Mf)9, CS(Mf)3(N)	
<b>Parameter(s) with Exceedance(s)</b>	Surface and Middle-depth Dissolved Oxygen (DO) Bottom-depth Dissolved Oxygen (DO)	
<b>Action Levels for DO</b>	Surface and Middle-depth DO	5.0 mg/L
	Bottom-depth DO	4.7 mg/L
<b>Limit Levels for DO</b>	Surface and Middle-depth DO	4.2 mg/L
	Bottom-depth DO	3.6 mg/L
<b>Measured Levels</b>	<p><u>Action Level Exceedance</u></p> <ol style="list-style-type: none"> <li>1. Mid-ebb at IS(Mf)16 (Surface &amp; Middle-depth DO = 4.9 mg/L)</li> <li>2. Mid-ebb at SR4a (Surface &amp; Middle-depth DO = 4.8 mg/L)</li> <li>3. Mid-ebb at SR4a (Bottom-depth DO = 4.0 mg/L)</li> <li>4. Mid-ebb at SR4(N2) (Surface &amp; Middle-depth DO = 4.3 mg/L)</li> <li>5. Mid-ebb at IS8(N) (Surface &amp; Middle-depth DO = 4.7 mg/L)</li> <li>6. Mid-ebb at IS8(N) (Bottom-depth DO = 4.4 mg/L)</li> <li>7. Mid-flood at SR4a (Bottom-depth DO 4.2 = mg/L)</li> </ol> <p><u>Limit Level Exceedance</u></p> <ol style="list-style-type: none"> <li>1. Mid-ebb at SR4(N2) (Bottom-depth DO = 3.5 mg/L)</li> </ol>	
<b>Works Undertaken (at the time of monitoring event)</b>	No marine works were undertaken on 28 August 2019.	

<b>Possible Reason for Action or Limit Level Exceedance(s)</b>	<p>The exceedance of DO is unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> <li>• No marine works were undertaken on 28 August 2019.</li> <li>• The DO pattern at the station with exceedance was similar to the control stations where the bottom-depth DO levels are generally lower. In addition, lower bottom-depth DO levels may possibly be caused by the stratification of seawater during summer when the freshwater discharged from the Pearl River tended to form a surface layer of lower salinity water, which is probably responsible for the lower Salinity recorded at the surface and middle levels compared to the higher Salinity recorded at the bottom level of the monitoring stations. The stratification of seawater in the water column is likely a contributing factor to the results of lower levels of DO at the bottom level. The stratification of seawater in the water column is likely a contributing factor to the results of lower levels of DO at the bottom level.</li> <li>• Surface &amp; Middle-depth DO levels exceedances recorded during mid-ebb tide were similar to the corresponding control station, CS(Mf)3(N), during mid-ebb tide, in which the recorded Surface &amp; Middle-depth DO level at the corresponding control station were below Action Level. In addition, stations with Surface &amp; Middle-depth DO exceedances have recorded exceedances in Bottom-depth DO in which the Bottom-depth DO is lower or the same as the Surface &amp; Middle-depth DO.</li> <li>• There are no discharge of waste water from the landside works area under this Contract.</li> </ul>
<b>Actions Taken / To Be Taken</b>	<p>No immediate action is considered necessary. The ET will monitor for future trends in exceedances.</p>
<b>Remarks</b>	<p>The monitoring results on 28 August 2019 and locations of water quality monitoring stations are attached.</p>

Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Level Code	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity
HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)5	9:55	Surface	1	1	27.7	7.8	23.3	5.1	4.5	2.1	2.3
HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)5	9:55	Surface	1	2	27.7	7.9	22.9	5.1		1.9	
HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)5	9:55	Middle	2	1	25.9	7.8	28.8	3.9		1.5	
HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)5	9:55	Middle	2	2	25.9	7.8	28.2	3.9		1.6	
HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)5	9:55	Bottom	3	1	24.8	7.7	31.6	3.2	3.2	3.5	
HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)5	9:55	Bottom	3	2	24.8	7.7	30.9	3.2		3.4	
HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)3(N)	11:16	Surface	1	1	28.7	7.8	20.4	4.9	4.5	1.2	5.2
HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)3(N)	11:16	Surface	1	2	28.7	7.8	20.0	4.9		1.2	
HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)3(N)	11:16	Middle	2	1	27.9	7.7	23.6	4.0		4.8	
HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)3(N)	11:16	Middle	2	2	27.9	7.7	23.1	4.0		4.9	
HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)3(N)	11:16	Bottom	3	1	27.2	7.7	26.0	3.7	3.7	9.3	
HY/2012/08	2019/08/28	Mid-Ebb	CS(Mf)3(N)	11:16	Bottom	3	2	27.2	7.6	25.5	3.7		9.8	
HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)16	11:51	Surface	1	1	28.3	7.8	22.7	4.9	4.9	7.8	8.2
HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)16	11:51	Surface	1	2	28.3	7.8	22.1	4.9		7.9	
HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)16	11:51	Middle	2	1							
HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)16	11:51	Middle	2	2							
HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)16	11:51	Bottom	3	1	27.5	7.8	24.3	4.9	4.9	8.3	
HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)16	11:51	Bottom	3	2	27.8	7.8	24.3	4.8		8.9	
HY/2012/08	2019/08/28	Mid-Ebb	SR4a	12:01	Surface	1	1	28.1	7.7	21.5	4.8	4.8	6.5	7.4
HY/2012/08	2019/08/28	Mid-Ebb	SR4a	12:01	Surface	1	2	28.1	7.8	21.1	4.8		6.1	
HY/2012/08	2019/08/28	Mid-Ebb	SR4a	12:01	Middle	2	1							
HY/2012/08	2019/08/28	Mid-Ebb	SR4a	12:01	Middle	2	2							
HY/2012/08	2019/08/28	Mid-Ebb	SR4a	12:01	Bottom	3	1	27.4	7.7	24.7	4.0	4.0	8.9	
HY/2012/08	2019/08/28	Mid-Ebb	SR4a	12:01	Bottom	3	2	27.4	7.7	24.2	4.0		8.2	
HY/2012/08	2019/08/28	Mid-Ebb	SR4(N2)	12:09	Surface	1	1	28.2	7.7	21.9	4.3	4.3	9.4	10.0
HY/2012/08	2019/08/28	Mid-Ebb	SR4(N2)	12:09	Surface	1	2	28.2	7.8	21.5	4.3		9.6	
HY/2012/08	2019/08/28	Mid-Ebb	SR4(N2)	12:09	Middle	2	1							
HY/2012/08	2019/08/28	Mid-Ebb	SR4(N2)	12:09	Middle	2	2							
HY/2012/08	2019/08/28	Mid-Ebb	SR4(N2)	12:09	Bottom	3	1	27.6	7.7	24.0	3.5	3.5	10.5	
HY/2012/08	2019/08/28	Mid-Ebb	SR4(N2)	12:09	Bottom	3	2	27.6	7.7	23.7	3.5		10.6	
HY/2012/08	2019/08/28	Mid-Ebb	IS8(N)	12:14	Surface	1	1	28.0	7.8	22.9	4.6	4.7	7.6	9.1
HY/2012/08	2019/08/28	Mid-Ebb	IS8(N)	12:14	Surface	1	2	28.0	7.7	22.4	4.7		7.3	
HY/2012/08	2019/08/28	Mid-Ebb	IS8(N)	12:14	Middle	2	1							
HY/2012/08	2019/08/28	Mid-Ebb	IS8(N)	12:14	Middle	2	2							
HY/2012/08	2019/08/28	Mid-Ebb	IS8(N)	12:14	Bottom	3	1	27.5	7.7	24.4	4.2	4.4	10.7	
HY/2012/08	2019/08/28	Mid-Ebb	IS8(N)	12:14	Bottom	3	2	27.7	7.7	23.4	4.5		10.8	
HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)9	12:22	Surface	1	1					5.6		3.6
HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)9	12:22	Surface	1	2							
HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)9	12:22	Middle	2	1	29.0	7.8	21.5	5.6		3.8	
HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)9	12:22	Middle	2	2	29.0	7.8	21.1	5.6		3.3	
HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)9	12:22	Bottom	3	1					N/A		
HY/2012/08	2019/08/28	Mid-Ebb	IS(Mf)9	12:22	Bottom	3	2							

Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Level Code	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity
HY/2012/08	2019/08/28	Mid-flood	CS(Mf)5	18:53	Surface	1	1	27.8	7.8	24.0	4.9	4.2	2.5	8.1
HY/2012/08	2019/08/28	Mid-flood	CS(Mf)5	18:53	Surface	1	2	27.8	7.9	23.5	4.9		2.4	
HY/2012/08	2019/08/28	Mid-flood	CS(Mf)5	18:53	Middle	2	1	25.4	7.8	30.1	3.5		10.9	
HY/2012/08	2019/08/28	Mid-flood	CS(Mf)5	18:53	Middle	2	2	25.4	7.8	29.5	3.5		10.7	
HY/2012/08	2019/08/28	Mid-flood	CS(Mf)5	18:53	Bottom	3	1	25.4	7.8	30.1	3.6	3.6	10.6	
HY/2012/08	2019/08/28	Mid-flood	CS(Mf)5	18:53	Bottom	3	2	25.4	7.8	29.5	3.6		11.3	
HY/2012/08	2019/08/28	Mid-flood	CS(Mf)3(N)	17:56	Surface	1	1	29.8	7.8	15.1	5.5	5.3	5.9	5.9
HY/2012/08	2019/08/28	Mid-flood	CS(Mf)3(N)	17:56	Surface	1	2	29.8	7.8	14.9	5.4		5.1	
HY/2012/08	2019/08/28	Mid-flood	CS(Mf)3(N)	17:56	Middle	2	1	29.8	7.8	15.2	5.1		6.0	
HY/2012/08	2019/08/28	Mid-flood	CS(Mf)3(N)	17:56	Middle	2	2	29.8	7.7	14.9	5.2		5.9	
HY/2012/08	2019/08/28	Mid-flood	CS(Mf)3(N)	17:56	Bottom	3	1	28.2	7.7	19.9	4.5	4.5	6.2	
HY/2012/08	2019/08/28	Mid-flood	CS(Mf)3(N)	17:56	Bottom	3	2	28.4	7.7	20.3	4.4		6.3	
HY/2012/08	2019/08/28	Mid-flood	IS(Mf)16	17:22	Surface	1	1	28.7	7.9	22.0	5.8	5.8	9.1	10.4
HY/2012/08	2019/08/28	Mid-flood	IS(Mf)16	17:22	Surface	1	2	28.7	7.9	21.6	5.8		9.0	
HY/2012/08	2019/08/28	Mid-flood	IS(Mf)16	17:22	Middle	2	1							
HY/2012/08	2019/08/28	Mid-flood	IS(Mf)16	17:22	Middle	2	2							
HY/2012/08	2019/08/28	Mid-flood	IS(Mf)16	17:22	Bottom	3	1	28.7	7.9	22.1	5.8	5.8	11.6	
HY/2012/08	2019/08/28	Mid-flood	IS(Mf)16	17:22	Bottom	3	2	28.6	7.8	21.7	5.8		11.9	
HY/2012/08	2019/08/28	Mid-flood	SR4a	17:12	Surface	1	1	28.5	7.9	22.2	5.6	5.6	5.9	6.7
HY/2012/08	2019/08/28	Mid-flood	SR4a	17:12	Surface	1	2	28.5	7.9	21.7	5.6		5.7	
HY/2012/08	2019/08/28	Mid-flood	SR4a	17:12	Middle	2	1							
HY/2012/08	2019/08/28	Mid-flood	SR4a	17:12	Middle	2	2							
HY/2012/08	2019/08/28	Mid-flood	SR4a	17:12	Bottom	3	1	28.1	7.8	23.0	4.2	4.2	7.9	
HY/2012/08	2019/08/28	Mid-flood	SR4a	17:12	Bottom	3	2	28.1	7.8	22.5	4.2		7.4	
HY/2012/08	2019/08/28	Mid-flood	SR4(N2)	17:04	Surface	1	1	29.4	7.9	21.2	6.1	6.1	7.9	10.6
HY/2012/08	2019/08/28	Mid-flood	SR4(N2)	17:04	Surface	1	2	29.4	7.9	20.8	6.1		7.9	
HY/2012/08	2019/08/28	Mid-flood	SR4(N2)	17:04	Middle	2	1							
HY/2012/08	2019/08/28	Mid-flood	SR4(N2)	17:04	Middle	2	2							
HY/2012/08	2019/08/28	Mid-flood	SR4(N2)	17:04	Bottom	3	1	28.8	7.9	22.0	5.2	5.2	13.4	
HY/2012/08	2019/08/28	Mid-flood	SR4(N2)	17:04	Bottom	3	2	28.8	7.8	21.7	5.2		13.0	
HY/2012/08	2019/08/28	Mid-flood	IS8(N)	16:58	Surface	1	1	28.9	7.9	21.5	5.8	5.8	8.5	9.6
HY/2012/08	2019/08/28	Mid-flood	IS8(N)	16:58	Surface	1	2	28.9	7.9	21.1	5.8		8.5	
HY/2012/08	2019/08/28	Mid-flood	IS8(N)	16:58	Middle	2	1							
HY/2012/08	2019/08/28	Mid-flood	IS8(N)	16:58	Middle	2	2							
HY/2012/08	2019/08/28	Mid-flood	IS8(N)	16:58	Bottom	3	1	28.9	7.9	21.5	5.8	5.8	11.0	
HY/2012/08	2019/08/28	Mid-flood	IS8(N)	16:58	Bottom	3	2	28.9	7.8	21.1	5.8		10.2	
HY/2012/08	2019/08/28	Mid-flood	IS(Mf)9	16:49	Surface	1	1					6.2		8.7
HY/2012/08	2019/08/28	Mid-flood	IS(Mf)9	16:49	Surface	1	2							
HY/2012/08	2019/08/28	Mid-flood	IS(Mf)9	16:49	Middle	2	1	28.8	8.0	21.9	6.1		8.4	
HY/2012/08	2019/08/28	Mid-flood	IS(Mf)9	16:49	Middle	2	2	28.8	7.9	21.5	6.2		8.9	
HY/2012/08	2019/08/28	Mid-flood	IS(Mf)9	16:49	Bottom	3	1					N/A		
HY/2012/08	2019/08/28	Mid-flood	IS(Mf)9	16:49	Bottom	3	2							

Note: Indicates Exceedance of Action Level  
Indicates Exceedance of Limit Level



**Key**

- Control / Far Field Station
- Impact Station
- Sensitive Receiver Station
- Site Boundary

WQMS	X	Y
<b>Impact Station</b>		
IS8(N)	814413	818570
IS(Mf)9	813273	818850
IS(Mf)16	814328	819497
<b>Control / Far Field Station</b>		
CS(Mf)5	817990	821129
CS(Mf)3(N)	808814	822355
<b>Sensitive Receiver Station</b>		
SR4a	815247	818067
SR4(N2)	814688	817996

Locations of Water Quality Monitoring Stations



Email  
message

Environmental  
Resources  
Management

**To** Ramboll Hong Kong Limited (ENPO)

**From** ERM- Hong Kong, Limited

**Ref/Project number** Contract No. HY/2012/07  
Tuen Mun – Chek Lap Kok Link – Southern  
Connection Viaduct Section

**Subject** Notification of Exceedance for Marine Water  
Quality Impact Monitoring

**Date** 11 September 2019

2507,  
25/F One Harbourfront,  
18 Tak Fung Street,  
Hung Hom, Hong Kong  
Telephone: (852) 2271 3113  
Facsimile: (852) 2723 5660  
E-mail: jasmine.ng@erm.com



**ERM**

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Dear Sir/ Madam,


Please find attached the Notification of Exceedance (NOE) of the following  
Log no.:

Action Level Exceedance

0215660\_30 August 2019\_ Surface & Middle DO\_E\_Station SR4a  
0215660\_30 August 2019\_ Bottom DO\_E\_Station SR4a  
0215660\_30 August 2019\_ Surface & Middle DO\_E\_Station SR4(N2)  
0215660\_30 August 2019\_ Surface & Middle DO\_E\_Station IS8(N)  
0215660\_30 August 2019\_ Bottom DO\_F\_Station SR4a  
0215660\_30 August 2019\_ Surface & Middle DO\_F\_Station SR4(N2)

A total of six (6) exceedances were recorded on 30 August 2019.

Regards,



Dr Jasmine Ng  
*Environmental Team Leader*

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/07

TUEN MUN - CHEK LAP KOK LINK -  
SOUTHERN CONNECTION VIADUCT SECTION

*Marine Water Quality Impact Monitoring*

**Notification of Exceedance**

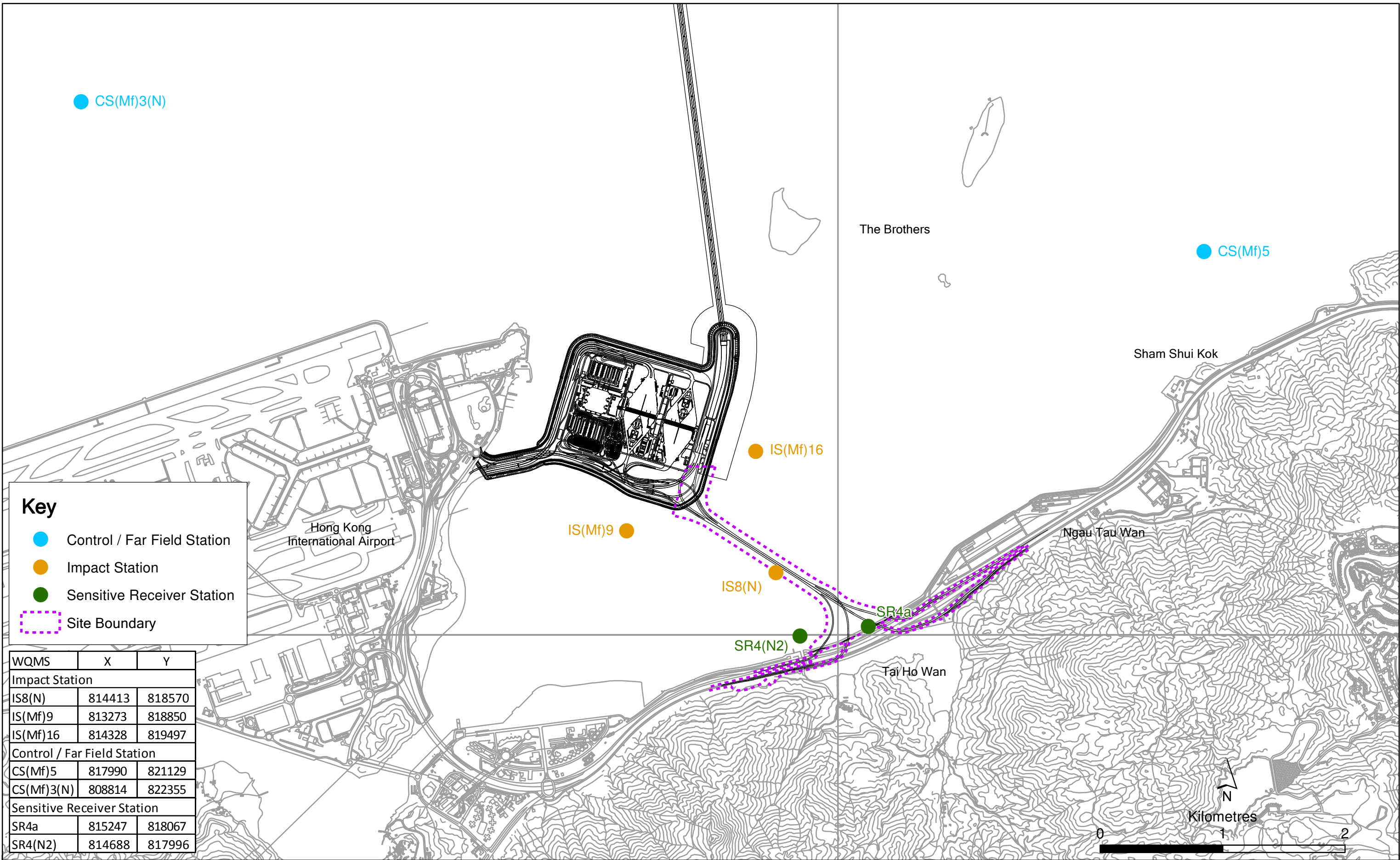
<b>Log No.</b>	<p><u>Action Level Exceedance</u>            0215660_28 August 2019_ Surface &amp; Middle DO_E_Station SR4a            0215660_28 August 2019_ Bottom DO_E_Station SR4a            0215660_28 August 2019_ Surface &amp; Middle DO_E_Station SR4(N2)            0215660_28 August 2019_ Surface &amp; Middle DO_E_Station IS8(N)            0215660_28 August 2019_ Bottom DO_F_Station SR4a            0215660_28 August 2019_ Surface &amp; Middle DO_F_Station SR4(N2)</p> <p>[Total No. of Exceedance = 6]</p>	
<b>Date</b>	<p>30 August 2019 (Measured)            11 September 2019 (Results obtained from ENPO Website)</p>	
<b>Monitoring Station</b>	<p>CS(Mf)5, SR4a, SR4(N2), IS8(N), IS(Mf)16, IS(Mf)9, CS(Mf)3(N)</p>	
<b>Parameter(s) with Exceedance(s)</b>	<p>Surface and Middle-depth Dissolved Oxygen (DO)            Bottom-depth Dissolved Oxygen (DO)</p>	
<b>Action Levels for DO</b>	Surface and Middle-depth DO	5.0 mg/L
	Bottom-depth DO	4.7 mg/L
<b>Limit Levels for DO</b>	Surface and Middle-depth DO	4.2 mg/L
	Bottom-depth DO	3.6 mg/L
<b>Measured Levels</b>	<p><u>Action Level Exceedance</u></p> <ol style="list-style-type: none"> <li>1. Mid-ebb at SR4a (Surface &amp; Middle-depth DO = 4.5 mg/L)</li> <li>2. Mid-ebb at SR4a (Bottom-depth DO = 4.5 mg/L)</li> <li>3. Mid-ebb at SR4(N2) (Surface &amp; Middle-depth DO = 4.8 mg/L)</li> <li>4. Mid-ebb at IS8(N) (Surface &amp; Middle-depth DO = 4.9 mg/L)</li> <li>5. Mid-flood at SR4a (Bottom-depth DO 4.1 = mg/L)</li> <li>6. Mid-flood at SR4(N2) (Surface &amp; Middle-depth DO = 4.9 mg/L)</li> </ol>	
<b>Works Undertaken (at the time of monitoring event)</b>	<p>No marine works were undertaken on 30 August 2019.</p>	

<b>Possible Reason for Action or Limit Level Exceedance(s)</b>	<p>The exceedance of DO is unlikely to be due to the Contract, in view of the following:</p> <ul style="list-style-type: none"> <li>• No marine works were undertaken on 30 August 2019.</li> <li>• The Surface &amp; Middle depth DO with exceedances recorded at the SR4a, SR4(N2) and IS8(N) stations during mi-ebb tide and SR4(N2) during mid-floods tide were similar to the corresponding control stations, CS(Mf)3(N) during mid-ebb and CS(Mf)5 during mid-flood , in which the recorded Surface &amp; Middle-depth DO levels at the corresponding control stations were below Action Level.</li> <li>• In addition, the bottom-depth DO levels at SR4a during mid-flood may possibly caused by the stratification of seawater during summer when the freshwater discharged from the Pearl River tended to form a surface layer of lower salinity water, which is probably responsible for the lower Salinity recorded at the surface and middle levels compared to the higher Salinity recorded at the bottom level of SR4a. The stratification of seawater in the water column is likely a contributing factor to the results of lower levels of DO at the bottom level at SR4a.</li> <li>• The bottom-depth DO at SR4a during mid-ebb was similar to the control station where the bottom-depth DO levels were generally lower. DO levels were generally lower at water quality monitoring stations due to reduce in natural ability for water to hold dissolved oxygen under higher water temperature in summer months. In addition, lower bottom-depth DO levels may possibly caused by the stratification of seawater during summer when the freshwater discharged from the Pearl River tended to form a surface layer of lower salinity water.</li> <li>• There are no discharge of waste water from the landside works area under this Contract.</li> </ul>
<b>Actions Taken/ To Be Taken</b>	<p>No immediate action is considered necessary. The ET will monitor for future trends in exceedances.</p>
<b>Remarks</b>	<p>The monitoring results on 30 August 2019 and locations of water quality monitoring stations are attached.</p>

Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Level Code	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)5	11:23	Surface	1	1	27.4	7.8	24.4	5.1	5.0	4.7	6.3	7.4	7.1
HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)5	11:23	Surface	1	2	27.4	7.8	24.3	5.2		4.7		8.3	
HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)5	11:23	Middle	2	1	27.1	7.8	25.4	4.8		6.0		8.8	
HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)5	11:23	Middle	2	2	27.1	7.8	25.4	4.8		6.1		8.3	
HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)5	11:23	Bottom	3	1	26.5	7.8	27.7	4.4	4.4	8.3		8.8	
HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)5	11:23	Bottom	3	2	26.5	7.8	27.7	4.3		8.2		9.8	
HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)3(N)	12:35	Surface	1	1	27.8	7.8	23.5	4.8	4.8	7.1	8.7	8.4	8.1
HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)3(N)	12:35	Surface	1	2	27.8	7.8	23.5	4.8		7.1		8.6	
HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)3(N)	12:35	Middle	2	1	27.7	7.8	24.2	4.8		9.2		9.2	
HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)3(N)	12:35	Middle	2	2	27.7	7.8	24.2	4.8		9.3		9.5	
HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)3(N)	12:35	Bottom	3	1	27.6	7.8	24.7	5.0	5.0	10.0		6.8	
HY/2012/08	2019/08/30	Mid-Ebb	CS(Mf)3(N)	12:35	Bottom	3	2	27.6	7.8	24.7	5.0		9.3		5.8	
HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)16	13:07	Surface	1	1	27.2	7.8	24.9	5.1	5.1	9.7	10.3	11.8	12.2
HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)16	13:07	Surface	1	2	27.4	7.8	24.7	5.1		9.4		12.1	
HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)16	13:07	Middle	2	1									
HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)16	13:07	Middle	2	2									
HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)16	13:07	Bottom	3	1	26.8	7.8	27.2	4.8	4.8	11.0		12.9	
HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)16	13:07	Bottom	3	2	26.8	7.8	27.2	4.7		10.9		12.0	
HY/2012/08	2019/08/30	Mid-Ebb	SR4a	13:16	Surface	1	1	27.4	7.8	24.7	4.5	4.5	10.2	10.3	12.7	15.1
HY/2012/08	2019/08/30	Mid-Ebb	SR4a	13:16	Surface	1	2	27.4	7.8	24.5	4.5		9.9		14.6	
HY/2012/08	2019/08/30	Mid-Ebb	SR4a	13:16	Middle	2	1									
HY/2012/08	2019/08/30	Mid-Ebb	SR4a	13:16	Middle	2	2									
HY/2012/08	2019/08/30	Mid-Ebb	SR4a	13:16	Bottom	3	1	26.8	7.8	26.8	4.5	4.5	10.7		14.3	
HY/2012/08	2019/08/30	Mid-Ebb	SR4a	13:16	Bottom	3	2	26.8	7.8	26.8	4.4		10.4		16.4	
HY/2012/08	2019/08/30	Mid-Ebb	SR4(N2)	13:21	Surface	1	1	27.6	7.8	23.5	4.8	4.8	12.2	14.1	9.0	11.4
HY/2012/08	2019/08/30	Mid-Ebb	SR4(N2)	13:21	Surface	1	2	27.6	7.8	23.5	4.8		11.9		10.2	
HY/2012/08	2019/08/30	Mid-Ebb	SR4(N2)	13:21	Middle	2	1									
HY/2012/08	2019/08/30	Mid-Ebb	SR4(N2)	13:21	Middle	2	2									
HY/2012/08	2019/08/30	Mid-Ebb	SR4(N2)	13:21	Bottom	3	1	27.1	7.8	24.9	4.9	4.9	16.2		13.3	
HY/2012/08	2019/08/30	Mid-Ebb	SR4(N2)	13:21	Bottom	3	2	27.2	7.8	24.9	4.9		16.2		13.1	
HY/2012/08	2019/08/30	Mid-Ebb	IS8(N)	13:27	Surface	1	1	27.6	7.8	24.0	4.9	4.9	9.2	11.3	11.8	11.8
HY/2012/08	2019/08/30	Mid-Ebb	IS8(N)	13:27	Surface	1	2	27.6	7.8	24.1	4.9		8.3		11.2	
HY/2012/08	2019/08/30	Mid-Ebb	IS8(N)	13:27	Middle	2	1									
HY/2012/08	2019/08/30	Mid-Ebb	IS8(N)	13:27	Middle	2	2									
HY/2012/08	2019/08/30	Mid-Ebb	IS8(N)	13:27	Bottom	3	1	27.1	7.8	24.4	4.7	4.8	13.8		12.4	
HY/2012/08	2019/08/30	Mid-Ebb	IS8(N)	13:27	Bottom	3	2	27.2	7.8	24.6	4.8		13.8		11.8	
HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)9	13:35	Surface	1	1	27.8	7.8	24.3	5.1	5.1	9.7	9.5	7.9	5.7
HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)9	13:35	Surface	1	2	27.8	7.8	24.3	5.1		9.9		8.9	
HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)9	13:35	Middle	2	1									
HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)9	13:35	Middle	2	2									
HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)9	13:35	Bottom	3	1	27.8	7.8	24.2	5.2	5.2	9.2		8.4	
HY/2012/08	2019/08/30	Mid-Ebb	IS(Mf)9	13:35	Bottom	3	2	27.8	7.8	24.2	5.1		9.1		8.9	

Contract	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Level Code	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
HY/2012/08	2019/08/30	Mid-flood	CS(Mf)5	19:52	Surface	1	1	27.4	7.8	25.0	4.8	4.7	5.4	6.9	7.9	8.8
HY/2012/08	2019/08/30	Mid-flood	CS(Mf)5	19:52	Surface	1	2	27.4	7.8	25.1	4.8		5.4		7.1	
HY/2012/08	2019/08/30	Mid-flood	CS(Mf)5	19:52	Middle	2	1	26.8	7.8	26.7	4.6		7.0		7.8	
HY/2012/08	2019/08/30	Mid-flood	CS(Mf)5	19:52	Middle	2	2	27.0	7.8	26.1	4.6		7.0		7.9	
HY/2012/08	2019/08/30	Mid-flood	CS(Mf)5	19:52	Bottom	3	1	26.6	7.8	27.3	4.6	4.6	8.6	6.9	11.7	8.8
HY/2012/08	2019/08/30	Mid-flood	CS(Mf)5	19:52	Bottom	3	2	26.6	7.8	27.3	4.6	8.1	10.4			
HY/2012/08	2019/08/30	Mid-flood	CS(Mf)3(N)	19:01	Surface	1	1	28.7	7.7	18.4	4.8	4.8	11.1	13.6	8.9	8.6
HY/2012/08	2019/08/30	Mid-flood	CS(Mf)3(N)	19:01	Surface	1	2	28.7	7.7	18.4	4.8		11.9		8.0	
HY/2012/08	2019/08/30	Mid-flood	CS(Mf)3(N)	19:01	Middle	2	1	28.6	7.7	18.7	4.9		13.9		9.2	
HY/2012/08	2019/08/30	Mid-flood	CS(Mf)3(N)	19:01	Middle	2	2	28.7	7.7	18.7	4.8		13.7		8.5	
HY/2012/08	2019/08/30	Mid-flood	CS(Mf)3(N)	19:01	Bottom	3	1	28.6	7.7	18.9	4.9	4.9	15.7	13.6	8.9	8.6
HY/2012/08	2019/08/30	Mid-flood	CS(Mf)3(N)	19:01	Bottom	3	2	28.6	7.7	18.9	4.9	15.3	7.9			
HY/2012/08	2019/08/30	Mid-flood	IS(Mf)16	18:27	Surface	1	1	27.7	7.9	24.2	5.3	5.3	17.1	18.6	8.9	9.6
HY/2012/08	2019/08/30	Mid-flood	IS(Mf)16	18:27	Surface	1	2	27.7	7.9	24.2	5.3		17.8		8.4	
HY/2012/08	2019/08/30	Mid-flood	IS(Mf)16	18:27	Middle	2	1									
HY/2012/08	2019/08/30	Mid-flood	IS(Mf)16	18:27	Middle	2	2									
HY/2012/08	2019/08/30	Mid-flood	IS(Mf)16	18:27	Bottom	3	1	27.7	7.9	24.5	5.3	5.3	19.9	18.6	10.4	9.6
HY/2012/08	2019/08/30	Mid-flood	IS(Mf)16	18:27	Bottom	3	2	27.7	7.9	24.5	5.3	19.4	10.6			
HY/2012/08	2019/08/30	Mid-flood	SR4a	18:20	Surface	1	1	27.6	7.9	24.0	5.0	5.0	10.4	12.4	14.5	13.4
HY/2012/08	2019/08/30	Mid-flood	SR4a	18:20	Surface	1	2	27.7	7.9	23.9	5.0		10.2		12.9	
HY/2012/08	2019/08/30	Mid-flood	SR4a	18:20	Middle	2	1									
HY/2012/08	2019/08/30	Mid-flood	SR4a	18:20	Middle	2	2									
HY/2012/08	2019/08/30	Mid-flood	SR4a	18:20	Bottom	3	1	27.3	7.9	26.5	4.1	4.1	14.1	12.4	14.0	13.4
HY/2012/08	2019/08/30	Mid-flood	SR4a	18:20	Bottom	3	2	27.3	7.9	26.5	4.0	14.8	13.2			
HY/2012/08	2019/08/30	Mid-flood	SR4(N2)	18:17	Surface	1	1	27.5	7.9	24.6	4.9	4.9	9.6	9.9	10.9	13.2
HY/2012/08	2019/08/30	Mid-flood	SR4(N2)	18:17	Surface	1	2	27.5	7.9	24.4	4.9		9.9		12.3	
HY/2012/08	2019/08/30	Mid-flood	SR4(N2)	18:17	Middle	2	1									
HY/2012/08	2019/08/30	Mid-flood	SR4(N2)	18:17	Middle	2	2									
HY/2012/08	2019/08/30	Mid-flood	SR4(N2)	18:17	Bottom	3	1	27.4	7.9	24.8	5.0	5.0	9.9	9.9	13.9	13.2
HY/2012/08	2019/08/30	Mid-flood	SR4(N2)	18:17	Bottom	3	2	27.4	7.9	24.8	4.9	10.0	15.7			
HY/2012/08	2019/08/30	Mid-flood	IS8(N)	18:13	Surface	1	1	27.7	7.9	24.3	5.3	5.3	10.3	10.6	10.4	11.2
HY/2012/08	2019/08/30	Mid-flood	IS8(N)	18:13	Surface	1	2	27.7	7.9	24.2	5.3		10.3		9.5	
HY/2012/08	2019/08/30	Mid-flood	IS8(N)	18:13	Middle	2	1									
HY/2012/08	2019/08/30	Mid-flood	IS8(N)	18:13	Middle	2	2									
HY/2012/08	2019/08/30	Mid-flood	IS8(N)	18:13	Bottom	3	1	27.7	7.9	24.4	5.4	5.4	10.9	10.6	13.0	11.2
HY/2012/08	2019/08/30	Mid-flood	IS8(N)	18:13	Bottom	3	2	27.7	7.9	24.4	5.4	10.9	11.7			
HY/2012/08	2019/08/30	Mid-flood	IS(Mf)9	18:05	Surface	1	1	27.7	8.0	24.5	5.8	5.8	16.8	18.0	8.9	6.3
HY/2012/08	2019/08/30	Mid-flood	IS(Mf)9	18:05	Surface	1	2	27.7	8.0	24.5	5.8		16.6		7.9	
HY/2012/08	2019/08/30	Mid-flood	IS(Mf)9	18:05	Middle	2	1									
HY/2012/08	2019/08/30	Mid-flood	IS(Mf)9	18:05	Middle	2	2									
HY/2012/08	2019/08/30	Mid-flood	IS(Mf)9	18:05	Bottom	3	1	27.7	8.0	24.5	5.9	5.9	19.3	18.0	8.1	6.3
HY/2012/08	2019/08/30	Mid-flood	IS(Mf)9	18:05	Bottom	3	2	27.7	8.0	24.5	5.8	19.3	7.7			

Note: Indicates Exceedance of Action Level  
Indicates Exceedance of Limit Level



**Key**

- Control / Far Field Station
- Impact Station
- Sensitive Receiver Station
- Site Boundary

WQMS	X	Y
<b>Impact Station</b>		
IS8(N)	814413	818570
IS(Mf)9	813273	818850
IS(Mf)16	814328	819497
<b>Control / Far Field Station</b>		
CS(Mf)5	817990	821129
CS(Mf)3(N)	808814	822355
<b>Sensitive Receiver Station</b>		
SR4a	815247	818067
SR4(N2)	814688	817996

Locations of Water Quality Monitoring Stations