Table L1 Cumulative Statistics on Exceedances

Parameters	Level of Exceedance	Total No. recorded in this reporting month	Total No. recorded since project commencement
1-hr TSP	Action	8	56
	Limit	0	4
24-hr TSP	Action	1	7
	Limit	3	4
Water Quality	Action	4	20
	Limit	0	1
Impact Dolphin Monitoring	Action	0	9
	Limit	0	11

Table L2 Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Successful Prosecutions
This Reporting Month (December 2017)	0	0	0
Total No. received since project commencement	15	1	0

Email message

Environmental Resources Management

16/F Berkshire House,
25 Westlands Road
Quarry Bay, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jovy.tam@erm.com

To	Ramboll Environ - Hong Kong, Limited (ENPO)
From	ERM- Hong Kong, Limited
Ref/Project number	Contract No. HY/2012/08 Tuen Mun–Chek Lap Kok Link–Northern Connection Sub-sea Tunnel Section
Subject	Notification of Exceedance for Air Quality Impact Monitoring
Date	18 December 2017

ERM

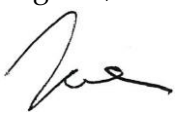
Dear Sir or Madam,

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

0212330_29November2017_1hrTSP_Station ASR10

One Action Level Exceedance was recorded on 29 November 2017.

Regards,



Mr Jovy Tam
Environmental Team Leader

ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08
TUEN MUN – CHEK LAP KOK LINK – NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

Air Quality Impact Monitoring
Notification of Exceedance

Log No.	**0212330_29November2017_1hrTSP_Station ASR10** **[Total No. of Exceedances = 1]**	
Date	29 November 2017 (Measured) 10 December 2017 (Laboratory results received by ERM)	
Monitoring Station	ASR1, ASR5, ASR6, ASR10 and AQMS1	
Parameter(s) with Exceedance(s)	1-hr TSP	
Action Levels	24-hr TSP (µg/m³)	ASR1 = 213 ASR5 = 238 AQMS1 = 213 ASR6 = 238 ASR10 = 214
	1-hr TSP (µg/m³)	ASR1 = 331 ASR5 = 340 AQMS1 = 335 ASR6 = 338 ASR10 = 337
Limit Levels	1-hr TSP (µg/m³)	500
	24-hr TSP (µg/m³)	260
Measured Levels	Action Level Exceedance for 1-hr TSP is observed at ASR10 (455 µg/m3) during 1410 - 1510 hrs.	
Works Undertaken (at the time of monitoring event)	On 29 November 2017, box culvert extension was carried out at Works Area Portion N-A and Construction of Ventilation Building at Portion N-C.	
Possible Reason for Action or Limit Level Exceedance(s)	The exceedances are unlikely to be due to the Project, in view of the following: • According to the construction information provided by the Contractor, the majority of ground construction works on 29 November 2017 were box culvert extension at Works Area Portion N-A and Construction of Ventilation Building at Portions N-C. During the period of the land-based construction works, the Contractor has implemented the required mitigation measures as per the EP, approved EIA and Updated EM&A Manual (e.g. water spraying on exposed soil within the Project site and associated works areas; exposed soil covered by tarpaulin sheets). • The Action Level at ASR10 is likely due to the maintenance works at the toilet nearby. The toilet is located within 5 meters from the high volume sampler at ASR 10. Concrete debris was found on the ground. Dusty environment was observed during the AQM inspection on 11 December 2017. The maintenance works at the toilet are considered to have major effect on dust generation. Based on the above, the exceedances are unlikely to be due to the project.	

Actions Taken / To Be Taken	Site inspection was carried out on 13 December 2017 to audit proper implementation of mitigation measures. Dust suppression measures were also properly implemented during the site inspections. Based on the above, no additional action is required. The Contractor has been reminded to implement the required mitigation measures as per the EP, approved EIA and Updated EM&A Manual including watering to maintain all exposed road surfaces and dust sources wet, use of sprinklers for water spraying, covering the materials having the potential to create dust by clean tarpaulin, use of water truck and watering on all exposed soil within the Project site) throughout the construction period. The Contractor was also reminded to ensure all dust mitigating measures are provided at Portion N-A and Portion N-C, where the construction works are carried out.
Remarks	The monitoring results and the locations of air quality monitoring stations are attached. Photo Record is provided in Annex A.

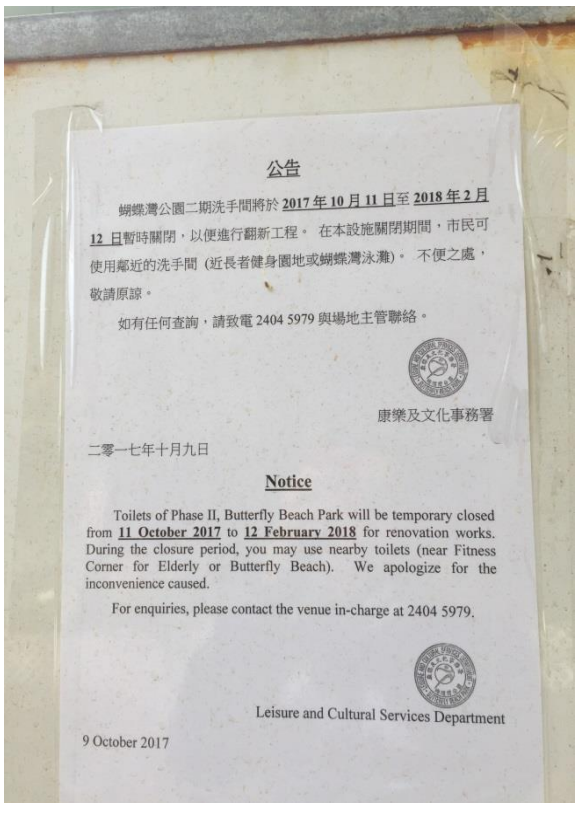
TMCLKL	HY/2012/08	29/11/2017	AQMS1	Sunny	13:52	1-hour TSP	92	ug/m3
TMCLKL	HY/2012/08	29/11/2017	AQMS1	Sunny	14:54	1-hour TSP	113	ug/m3
TMCLKL	HY/2012/08	29/11/2017	AQMS1	Sunny	15:56	1-hour TSP	97	ug/m3
TMCLKL	HY/2012/08	29/11/2017	ASR1	Sunny	13:41	1-hour TSP	240	ug/m3
TMCLKL	HY/2012/08	29/11/2017	ASR1	Sunny	14:43	1-hour TSP	164	ug/m3
TMCLKL	HY/2012/08	29/11/2017	ASR1	Sunny	15:45	1-hour TSP	87	ug/m3
TMCLKL	HY/2012/08	29/11/2017	ASR10	Sunny	13:08	1-hour TSP	254	ug/m3
TMCLKL	HY/2012/08	29/11/2017	ASR10	Sunny	14:10	1-hour TSP	455	ug/m3
TMCLKL	HY/2012/08	29/11/2017	ASR10	Sunny	15:12	1-hour TSP	145	ug/m3
TMCLKL	HY/2012/08	29/11/2017	ASR5	Sunny	13:31	1-hour TSP	300	ug/m3
TMCLKL	HY/2012/08	29/11/2017	ASR5	Sunny	14:33	1-hour TSP	260	ug/m3
TMCLKL	HY/2012/08	29/11/2017	ASR5	Sunny	15:35	1-hour TSP	143	ug/m3
TMCLKL	HY/2012/08	29/11/2017	ASR6	Sunny	13:20	1-hour TSP	204	ug/m3
TMCLKL	HY/2012/08	29/11/2017	ASR6	Sunny	14:22	1-hour TSP	335	ug/m3
TMCLKL	HY/2012/08	29/11/2017	ASR6	Sunny	15::24	1-hour TSP	140	ug/m3
TMCLKL	HY/2012/08	29/11/2017	AQMS1	Sunny	16:58	24-hour TSP	48	ug/m3
TMCLKL	HY/2012/08	29/11/2017	ASR1	Sunny	16:47	24-hour TSP	102	ug/m3
TMCLKL	HY/2012/08	29/11/2017	ASR10	Sunny	16:14	24-hour TSP	55	ug/m3
TMCLKL	HY/2012/08	29/11/2017	ASR5	Sunny	16:37	24-hour TSP	108	ug/m3
TMCLKL	HY/2012/08	29/11/2017	ASR6	Sunny	16:26	24-hour TSP	81	ug/m3

ERM

Annex A Photos taken during site inspection

*Note: Photos taken on 11/12/2017

ASR10



公告

蝴蝶灣公園二期洗手間將於 **2017 年 10 月 11 日**至 **2018 年 2 月 12 日**暫時關閉，以便進行翻新工程。 在本設施關閉期間，市民可使用鄰近的洗手間 (近長者健身園地或蝴蝶灣泳灘)。 不便之處，敬請原諒。

如有任何查詢，請致電 2404 5979 與場地主管聯絡。

康樂及文化事務署

二零一七年十月九日

Notice

Toilets of Phase II, Butterfly Beach Park will be temporary closed from **11 October 2017** to **12 February 2018** for renovation works. During the closure period, you may use nearby toilets (near Fitness Corner for Elderly or Butterfly Beach). We apologize for the inconvenience caused.

For enquiries, please contact the venue in-charge at 2404 5979.

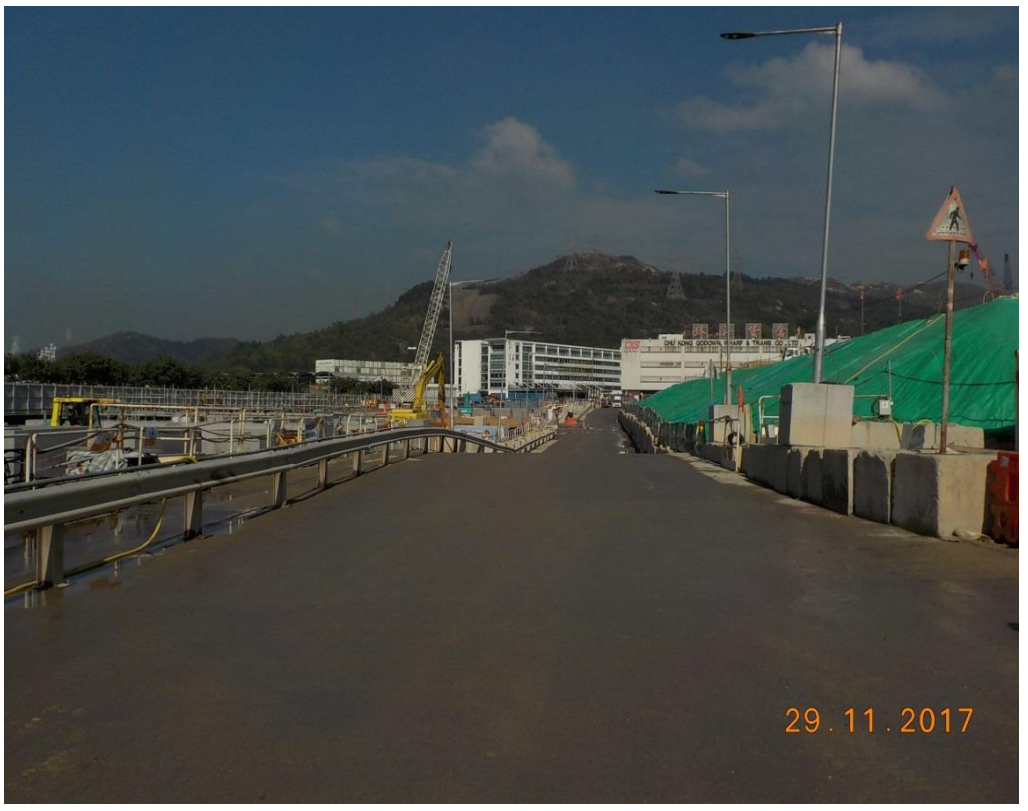
Leisure and Cultural Services Department

9 October 2017

Notification of works at ASR10

ERM

Annex A Photos taken during site inspection



Water spraying was applied frequently during dry conditions.(Works Area Portion N-A)

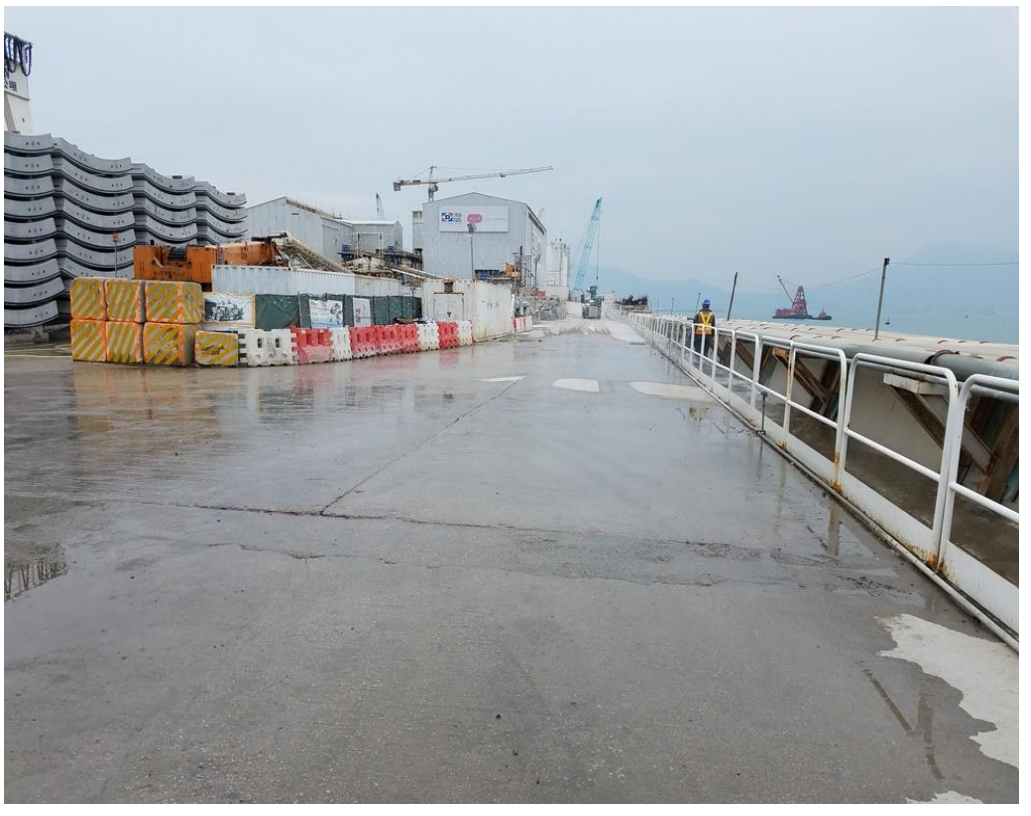
Water spraying was applied frequently during dry conditions.(Works Area Portion N-A)

ERM

Annex A Photos provided by the Contractor

*Note: Photos taken on 29/11/2017

Water spraying was applied frequently during dry conditions.(Works Area Portion N-B)



Water spraying was applied frequently during dry conditions.(Works Area Portion N-C)

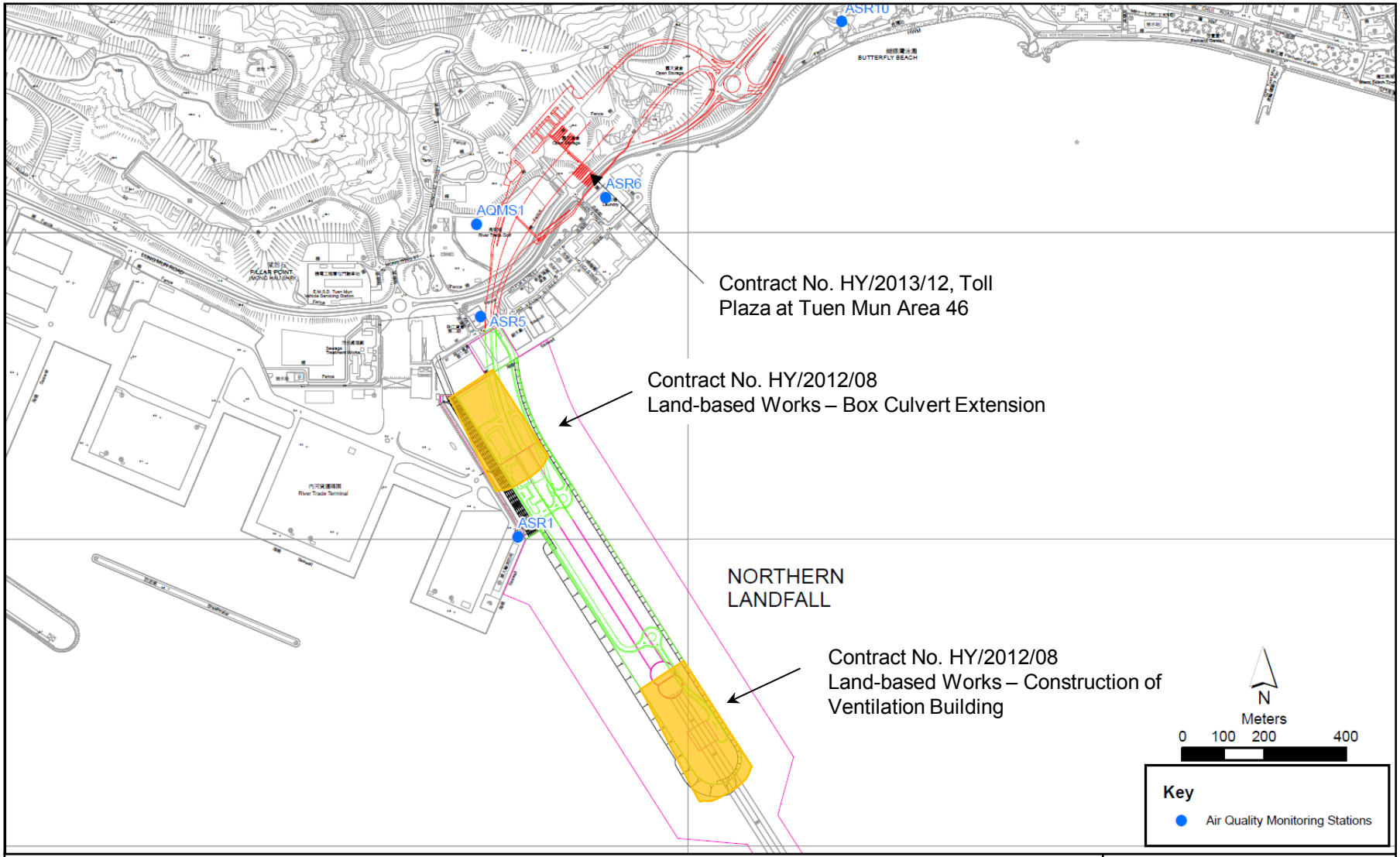


Figure 1

Indicative Construction Works Area on 29 November 2017

DATE: 06/03/2013

Environmental Resources Management

ERM


搜尋 Google 地圖
登入
蝴蝶灣停車場
白角污水泵房
屯門蝴蝶灣小食亭
蝴蝶灣公園
蝴蝶灣泳灘
龍門路
龍富路
Toilet under renovation works
蝴蝶灣公園廁所
ASR10
蝴蝶灣公園
衛星
Google
地圖資料 ©2018 Google 台灣 使用條款 提供意見 50 公尺

Email message

Environmental Resources Management

16/F Berkshire House,
25 Westlands Road
Quarry Bay, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jovy.tam@erm.com

To	Ramboll Environ - Hong Kong, Limited (ENPO)
From	ERM- Hong Kong, Limited
Ref/Project number	Contract No. HY/2012/08 Tuen Mun–Chek Lap Kok Link–Northern Connection Sub-sea Tunnel Section
Subject	Notification of Exceedance for Air Quality Impact Monitoring
Date	19 December 2017

ERM

Dear Sir or Madam,

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

0212330_8December2017_1hrTSP_Station ASR5
0212330_8December2017_24hrTSP_Station ASR1
0212330_8December2017_24hrTSP_Station ASR5

One Action Level and Two Limit Level Exceedances were recorded on 8 December 2017.

Regards,

Mr Jovy Tam
Environmental Team Leader

ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08
TUEN MUN – CHEK LAP KOK LINK – NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

Air Quality Impact Monitoring
Notification of Exceedance

Log No.	**0212330_8December2017_1hrTSP_Station ASR5** **0212330_8December2017_24hrTSP_Station ASR1** **0212330_8December2017_24hrTSP_Station ASR5** **[Total No. of Exceedances = 3]**	
Date	8 December 2017 (Measured) 15 December 2017 (Laboratory results received by ERM)	
Monitoring Station	ASR1, ASR5, ASR6, ASR10 and AQMS1	
Parameter(s) with Exceedance(s)	1-hr TSP 24-hr TSP	
Action Levels	24-hr TSP (µg/m³)	ASR1 = 213 ASR5 = 238 AQMS1 = 213 ASR6 = 238 ASR10 = 214
	1-hr TSP (µg/m³)	ASR1 = 331 ASR5 = 340 AQMS1 = 335 ASR6 = 338 ASR10 = 337
Limit Levels	1-hr TSP (µg/m³)	500
	24-hr TSP (µg/m³)	260
Measured Levels	Action Level Exceedance for 1-hr TSP is observed at ASR5 (353 µg/m3) during 1334 – 1434 hrs. Limit Level Exceedance for 24-hr TSP is observed at ASR1 (328 µg/m3) during 1651 – 1651 hrs. Limit Level Exceedance for 24-hr TSP is observed at ASR5 (279 µg/m3) during 1640 – 1640 hrs.	
Works Undertaken (at the time of monitoring event)	On 8 December 2017, Box culvert extension was carried out at Works Area Portion N-A and Construction of Ventilation Building at Portion N-C.	

Possible Reason for Action or Limit Level Exceedance(s)	The exceedances are unlikely to be due to the Project, in view of the following: • According to the construction information provided by the Contractor, the majority of ground construction works on 8 December 2017 were box culvert extension at Works Area Portion N-A and Construction of Ventilation Building at Portions N-C. The exceedances for are unlikely to be due to the project as the Contractor has implemented the required mitigation measures as per the EP, approved EIA and Updated EM&A Manual (e.g. water spraying on exposed soil within the Project site and associated works areas; exposed soil covered by tarpaulin sheets) during the period of recorded exceedances. • The limit level exceedance for 24-hr TSP at ASR5 is unlikely to be due to the project as the average wind direction was from ASR5 to the site area during the construction period. From 16:00 (8 Dec) to 20:00 (8 Dec), average wind direction was from ASR5 to the site area. From 20:00 (8 Dec) to 07:00 (9 Dec), there was no ground construction works. From 07:00 (9 Dec) to 17:00 (9 Dec), most of the time the average wind direction was from ASR5 to the site area, except that from 12:00 to 14:00. Generally Station ASR5 are located upstream of the major construction activities at Portion N-A, thus they should not be affected by the dust, if any, generated by the construction activities and the exceedance for 24-hour TSP is unlikely to be due to the concerned construction activities. • The limit level exceedance for 24-hr TSP at ASR1 is unlikely to be due to the project as dust suppression measures were implemented properly on site. Water spraying was applied. Exposed soil at Portion N-A was also covered by tarpaulin sheets. Photo record on 8 December 2017 is provided in Annex A. Based on the above, the exceedances are unlikely to be due to the project.
Actions Taken / To Be Taken	Site inspection was carried out on 13 December 2017 to audit proper implementation of mitigation measures. Dust suppression measures were also properly implemented during the site inspections. Photo record is provided in Annex A. Based on the above, no additional action is required. The Contractor has been reminded to implement the required mitigation measures as per the EP, approved EIA and Updated EM&A Manual including watering to maintain all exposed road surfaces and dust sources wet, use of sprinklers for water spraying, covering the materials having the potential to create dust by clean tarpaulin, use of water truck and watering on all exposed soil within the Project site) throughout the construction period. The Contractor was also reminded to ensure all dust mitigating measures are provided at Portion N-A and Portion N-C, where the construction works are carried out.
Remarks	The monitoring results and the locations of air quality monitoring stations are attached.

ERM

Annex A Photos provided by the Contractor

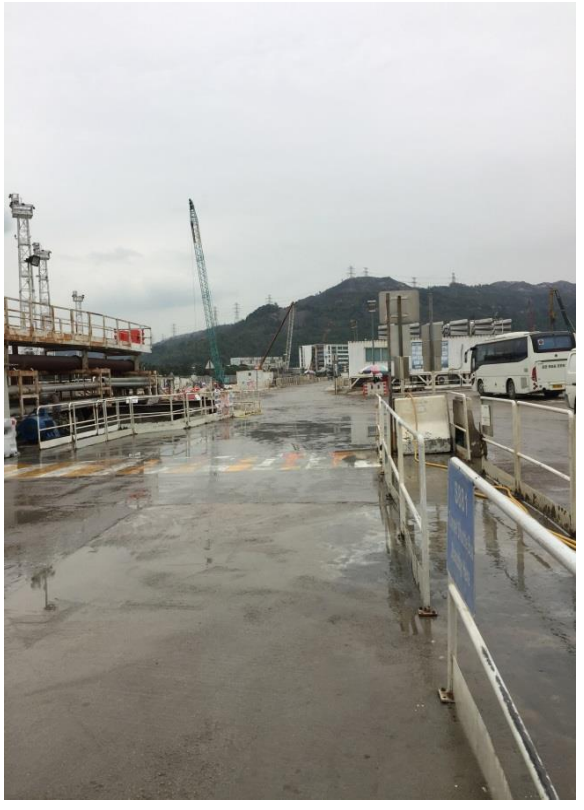
Water spraying was applied frequently during dry conditions. (Works Area Portion N-A)

Exposed soil at Portion N-A was also covered by tarpaulin sheets. (Works Area Portion N-A)

ERM

Annex A Photos taken during site inspection

*Note: Photos taken on 13/12/2017



Water spraying was applied frequently during dry conditions.(Works Area Portion N-B)

Exposed soil at Portion N-A was also covered by tarpaulin sheets. (Works Area Portion N-A)

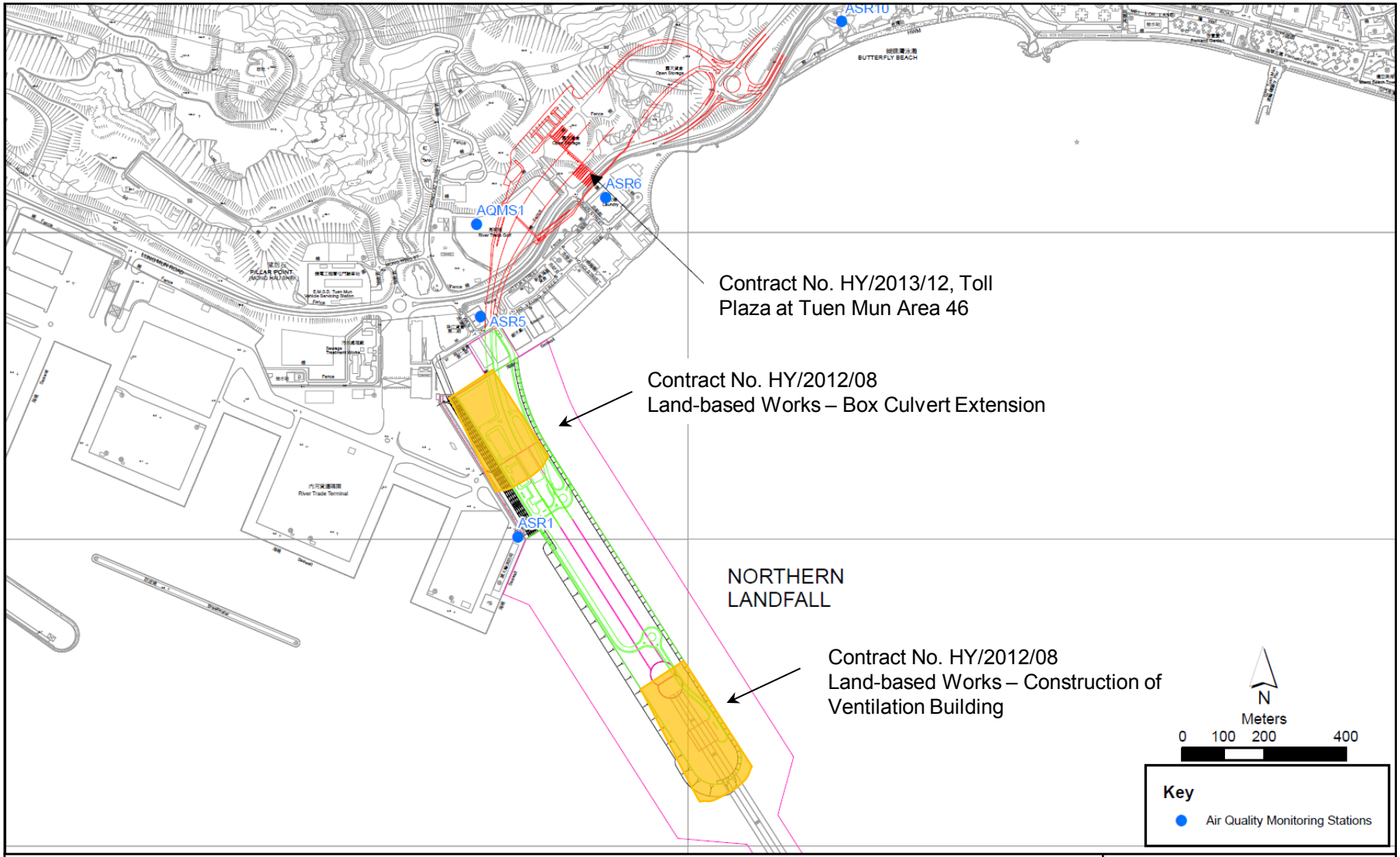


Figure 1

Indicative Construction Works Area on 8 December 2017

DATE: 06/03/2013

Environmental Resources Management

ERM

TMCLKL	HY/2012/08	8/12/2017	AQMS1	Sunny	13:56	1-hour TSP	122	ug/m3
TMCLKL	HY/2012/08	8/12/2017	AQMS1	Sunny	14:58	1-hour TSP	137	ug/m3
TMCLKL	HY/2012/08	8/12/2017	AQMS1	Sunny	16:00	1-hour TSP	104	ug/m3
TMCLKL	HY/2012/08	8/12/2017	ASR1	Sunny	13:45	1-hour TSP	279	ug/m3
TMCLKL	HY/2012/08	8/12/2017	ASR1	Sunny	14:47	1-hour TSP	299	ug/m3
TMCLKL	HY/2012/08	8/12/2017	ASR1	Sunny	15:49	1-hour TSP	243	ug/m3
TMCLKL	HY/2012/08	8/12/2017	ASR10	Sunny	13:11	1-hour TSP	109	ug/m3
TMCLKL	HY/2012/08	8/12/2017	ASR10	Sunny	14:13	1-hour TSP	224	ug/m3
TMCLKL	HY/2012/08	8/12/2017	ASR10	Sunny	15:15	1-hour TSP	249	ug/m3
TMCLKL	HY/2012/08	8/12/2017	ASR5	Sunny	13:34	1-hour TSP	353	ug/m3
TMCLKL	HY/2012/08	8/12/2017	ASR5	Sunny	14:36	1-hour TSP	285	ug/m3
TMCLKL	HY/2012/08	8/12/2017	ASR5	Sunny	15:38	1-hour TSP	235	ug/m3
TMCLKL	HY/2012/08	8/12/2017	ASR6	Sunny	13:22	1-hour TSP	187	ug/m3
TMCLKL	HY/2012/08	8/12/2017	ASR6	Sunny	14:24	1-hour TSP	208	ug/m3
TMCLKL	HY/2012/08	8/12/2017	ASR6	Sunny	15:26	1-hour TSP	208	ug/m3
TMCLKL	HY/2012/08	8/12/2017	AQMS1	Sunny	17:02	24-hour TSP	177	ug/m3
TMCLKL	HY/2012/08	8/12/2017	ASR1	Sunny	16:51	24-hour TSP	328	ug/m3
TMCLKL	HY/2012/08	8/12/2017	ASR10	Sunny	16:17	24-hour TSP	121	ug/m3
TMCLKL	HY/2012/08	8/12/2017	ASR5	Sunny	16:40	24-hour TSP	279	ug/m3
TMCLKL	HY/2012/08	8/12/2017	ASR6	Sunny	16:28	24-hour TSP	161	ug/m3

Meteorological Data for Impact Monitoring in the reporting period			
Date (yy-mm-dd)	**Time (24hrs)**	**Average of Wind Speed (m/s)**	**Average of Wind Direction(degree)**
08/12/17	0:00	0.9	344
08/12/17	1:00	1.3	358
08/12/17	2:00	1.3	349
08/12/17	3:00	0.4	325
08/12/17	4:00	0.9	351
08/12/17	5:00	0.4	319
08/12/17	6:00	0.9	322
08/12/17	7:00	0.9	315
08/12/17	8:00	1.3	350
08/12/17	9:00	2.2	12
08/12/17	10:00	2.7	16
08/12/17	11:00	2.2	46
08/12/17	12:00	2.2	42
08/12/17	13:00	2.2	19
08/12/17	14:00	2.2	41
08/12/17	15:00	2.2	355
08/12/17	16:00	2.2	343
08/12/17	17:00	1.8	352
08/12/17	18:00	1.3	321
08/12/17	19:00	0.9	95
08/12/17	20:00	1.3	351
08/12/17	21:00	2.7	5
08/12/17	22:00	3.6	20
08/12/17	23:00	4.5	4
09/12/17	0:00	4	13
09/12/17	1:00	3.6	11
09/12/17	2:00	3.1	17
09/12/17	3:00	3.1	10
09/12/17	4:00	3.1	43
09/12/17	5:00	1.8	40
09/12/17	6:00	0.9	348
09/12/17	7:00	0.9	223
09/12/17	8:00	1.3	312
09/12/17	9:00	2.2	43
09/12/17	10:00	1.8	39
09/12/17	11:00	1.8	92
09/12/17	12:00	1.3	168
09/12/17	13:00	1.8	205
09/12/17	14:00	1.8	223
09/12/17	15:00	1.3	274
09/12/17	16:00	1.3	288
09/12/17	17:00	0.9	284
09/12/17	18:00	1.3	311
09/12/17	19:00	0.9	341
09/12/17	20:00	0.9	352
09/12/17	21:00	0.4	18
09/12/17	22:00	0.9	315
09/12/17	23:00	0.9	92

Email message

Environmental Resources Management

16/F Berkshire House,
25 Westlands Road
Quarry Bay, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jovy.tam@erm.com

To	Ramboll Environ - Hong Kong, Limited (ENPO)
From	ERM- Hong Kong, Limited
Ref/Project number	Contract No. HY/2012/08 Tuen Mun–Chek Lap Kok Link–Northern Connection Sub-sea Tunnel Section
Subject	Notification of Exceedance for Air Quality Impact Monitoring
Date	27 December 2017

ERM

Dear Sir or Madam,

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

0212330_11December2017_1hrTSP_Station ASR1
0212330_11December2017_1hrTSP_Station ASR1
0212330_11December2017_1hrTSP_Station ASR5
0212330_11December2017_24hrTSP_Station ASR1

Four Action Level Exceedances were recorded on 11 December 2017.

Regards,

Mr Jovy Tam
Environmental Team Leader

ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08
TUEN MUN – CHEK LAP KOK LINK – NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

Air Quality Impact Monitoring
Notification of Exceedance

Log No.	**0212330_11December2017_1hrTSP_Station ASR1** **0212330_11December2017_1hrTSP_Station ASR1** **0212330_11December2017_1hrTSP_Station ASR5** **0212330_11December2017_24hrTSP_Station ASR1** **[Total No. of Exceedances = 4]**	
Date	11 December 2017 (Measured) 26 December 2017 (Laboratory results received by ERM)	
Monitoring Station	ASR1, ASR5, ASR6, ASR10 and AQMS1	
Parameter(s) with Exceedance(s)	1-hr TSP, 24-hr TSP	
Action Levels	24-hr TSP (µg/m³)	ASR1 = 213 ASR5 = 238 AQMS1 = 213 ASR6 = 238 ASR10 = 214
	1-hr TSP (µg/m³)	ASR1 = 331 ASR5 = 340 AQMS1 = 335 ASR6 = 338 ASR10 = 337
Limit Levels	1-hr TSP (µg/m³)	500
	24-hr TSP (µg/m³)	260
Measured Levels	Action Level Exceedance for 1-hr TSP is observed at ASR1 (399 µg/m3) during 1337 – 1437 hrs. Action Level Exceedance for 1-hr TSP is observed at ASR1 (443 µg/m3) during 1439 – 1539 hrs. Action Level Exceedance for 1-hr TSP is observed at ASR5 (417 µg/m3) during 1323 – 1423 hrs. Action Level Exceedance for 24-hr TSP is observed at ASR1 (218 µg/m3) during 1643 – 1643 hrs.	
Works Undertaken (at the time of monitoring event)	On 11 December 2017, box culvert extension was carried out at Works Area Portion N-A and Construction of Ventilation Building at Portion N-C.	
Possible Reason for Action or Limit Level Exceedance(s)	The exceedances are unlikely to be due to the Project, in view of the following: • According to the construction information provided by the Contractor, the majority of ground construction works on 11 December 2017 were box culvert extension at Works Area Portion N-A and Construction of Ventilation Building at Portions N-C. The exceedances for are unlikely to be due to the project as the Contractor has implemented the required mitigation measures as per the EP, approved EIA and Updated EM&A Manual (e.g. water spraying on exposed soil within the Project site and associated works areas; exposed soil covered by tarpaulin sheets) during the period of recorded exceedances. • The exceedances are unlikely to be due to the project as dust suppression measures were implemented properly on site. Water spraying was applied. Exposed soil at Portion N-A was also covered by tarpaulin sheets. Photo record on 11 December 2017 is provided in Annex A. Based on the above, the exceedances are unlikely to be due to the project.	

Actions Taken / To Be Taken	Site inspection was carried out on 13 December 2017 to audit proper implementation of mitigation measures. Dust suppression measures were also properly implemented during the site inspections. Photo record is provided in Annex A. Based on the above, no additional action is required. A meeting amongst the ET, IEC, SOR and the Contractor was held on 29 December 2017 to discuss the action / limit level exceedances of 24-hour TSP at ASR1 on 8 and 11 December 2017. As reported by the Contractor, dust suppression measures were properly implemented on 8 and 11 December 2017. At Works Area Portion N-A, which is closest to the AQM stations where exceedances were recorded, water spraying was applied to avoid dust and exposed soil was covered by tarpaulin sheets. It was concluded that the AQM exceedances are unlikely to be due to the project based on the above. The Contractor was reminded to implement the required mitigation measures as per the EP, approved EIA and Updated EM&A Manual. The ET was also reminded to carry out regular checking and maintenance on the AQM equipment to ensure the accuracy of the monitoring data. The Contractor has been reminded to implement the required mitigation measures as per the EP, approved EIA and Updated EM&A Manual including watering to maintain all exposed road surfaces and dust sources wet, use of sprinklers for water spraying, covering the materials having the potential to create dust by clean tarpaulin, use of water truck and watering on all exposed soil within the Project site) throughout the construction period. The Contractor was also reminded to ensure all dust mitigating measures are provided at Portion N-A and Portion N-C, where the construction works are carried out.
Remarks	The monitoring results and the locations of air quality monitoring stations are attached.

ERM

Annex A Photos provided by the Contractor

*Note: Photos taken on 11/12/2017

Water spraying was applied frequently during dry conditions. (Works Area Portion N-C)

Exposed soil at Portion N-A was also covered by tarpaulin sheets. (Works Area Portion N-A)

ERM

Annex A Photos provided by the Contractor

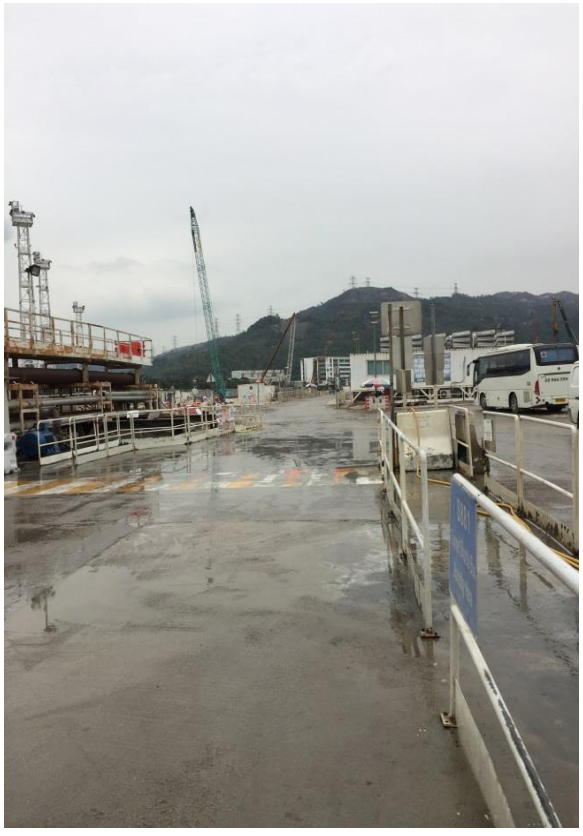
*Note: Photos taken on 11/12/2017

Water spraying was applied frequently during dry conditions. (Works Area Portion N-C)

ERM

Annex A Photos taken during site inspection

*Note: Photos taken on 13/12/2017



Water spraying was applied frequently during dry conditions.(Works Area Portion N-B)

Exposed soil at Portion N-A was also covered by tarpaulin sheets. (Works Area Portion N-A)

ERM

Annex A Photos taken at the AQM stations

*Note: Photos taken on 11/12/2017

ASR1

ASR5

TMCLKL	HY/2012/08	11/12/2017	AQMS1	Sunny	13:48	1-hour TSP	154	ug/m3
TMCLKL	HY/2012/08	11/12/2017	AQMS1	Sunny	14:50	1-hour TSP	151	ug/m3
TMCLKL	HY/2012/08	11/12/2017	AQMS1	Sunny	15:52	1-hour TSP	129	ug/m3
TMCLKL	HY/2012/08	11/12/2017	ASR1	Sunny	13:37	1-hour TSP	399	ug/m3
TMCLKL	HY/2012/08	11/12/2017	ASR1	Sunny	14:39	1-hour TSP	443	ug/m3
TMCLKL	HY/2012/08	11/12/2017	ASR1	Sunny	15:41	1-hour TSP	325	ug/m3
TMCLKL	HY/2012/08	11/12/2017	ASR10	Sunny	13:00	1-hour TSP	169	ug/m3
TMCLKL	HY/2012/08	11/12/2017	ASR10	Sunny	14:02	1-hour TSP	287	ug/m3
TMCLKL	HY/2012/08	11/12/2017	ASR10	Sunny	15:04	1-hour TSP	304	ug/m3
TMCLKL	HY/2012/08	11/12/2017	ASR5	Sunny	13:23	1-hour TSP	417	ug/m3
TMCLKL	HY/2012/08	11/12/2017	ASR5	Sunny	14:25	1-hour TSP	249	ug/m3
TMCLKL	HY/2012/08	11/12/2017	ASR5	Sunny	15:27	1-hour TSP	236	ug/m3
TMCLKL	HY/2012/08	11/12/2017	ASR6	Sunny	13:11	1-hour TSP	262	ug/m3
TMCLKL	HY/2012/08	11/12/2017	ASR6	Sunny	14:13	1-hour TSP	152	ug/m3
TMCLKL	HY/2012/08	11/12/2017	ASR6	Sunny	15:15	1-hour TSP	198	ug/m3
TMCLKL	HY/2012/08	11/12/2017	AQMS1	Sunny	16:54	24-hour TSP	105	ug/m3
TMCLKL	HY/2012/08	11/12/2017	ASR1	Sunny	16:43	24-hour TSP	218	ug/m3
TMCLKL	HY/2012/08	11/12/2017	ASR10	Sunny	16:06	24-hour TSP	112	ug/m3
TMCLKL	HY/2012/08	11/12/2017	ASR5	Sunny	16:29	24-hour TSP	189	ug/m3
TMCLKL	HY/2012/08	11/12/2017	ASR6	Sunny	16:17	24-hour TSP	139	ug/m3

Meteorological Data for Impact Monitoring in the reporting period			
Date (yy-mm-dd)	**Time (24hrs)**	**Average of Wind Speed (m/s)**	**Average of Wind Direction(degree)**
11/12/17	0:00	1.3	352
11/12/17	1:00	3.6	15
11/12/17	2:00	3.6	44
11/12/17	3:00	2.2	42
11/12/17	4:00	1.8	41
11/12/17	5:00	2.2	40
11/12/17	6:00	1.8	52
11/12/17	7:00	2.2	51
11/12/17	8:00	1.8	39
11/12/17	9:00	1.3	38
11/12/17	10:00	1.3	99
11/12/17	11:00	1.3	223
11/12/17	12:00	1.8	219
11/12/17	13:00	1.3	271
11/12/17	14:00	2.2	315
11/12/17	15:00	1.8	326
11/12/17	16:00	1.3	309
11/12/17	17:00	0.9	311
11/12/17	18:00	0.9	317
11/12/17	19:00	1.8	116
11/12/17	20:00	1.8	100
11/12/17	21:00	1.3	94
11/12/17	22:00	1.3	90
11/12/17	23:00	0.9	69
12/12/17	0:00	2.2	85
12/12/17	1:00	1.3	67
12/12/17	2:00	1.8	74
12/12/17	3:00	1.3	5
12/12/17	4:00	1.3	358
12/12/17	5:00	1.3	43
12/12/17	6:00	0.9	14
12/12/17	7:00	1.3	52
12/12/17	8:00	1.3	44
12/12/17	9:00	1.8	41
12/12/17	10:00	1.3	40
12/12/17	11:00	1.8	21
12/12/17	12:00	1.8	17
12/12/17	13:00	1.8	52
12/12/17	14:00	1.8	18
12/12/17	15:00	1.8	11
12/12/17	16:00	1.3	10
12/12/17	17:00	2.7	96
12/12/17	18:00	2.7	94
12/12/17	19:00	2.2	88
12/12/17	20:00	1.8	74
12/12/17	21:00	1.8	91
12/12/17	22:00	3.1	95
12/12/17	23:00	3.6	86

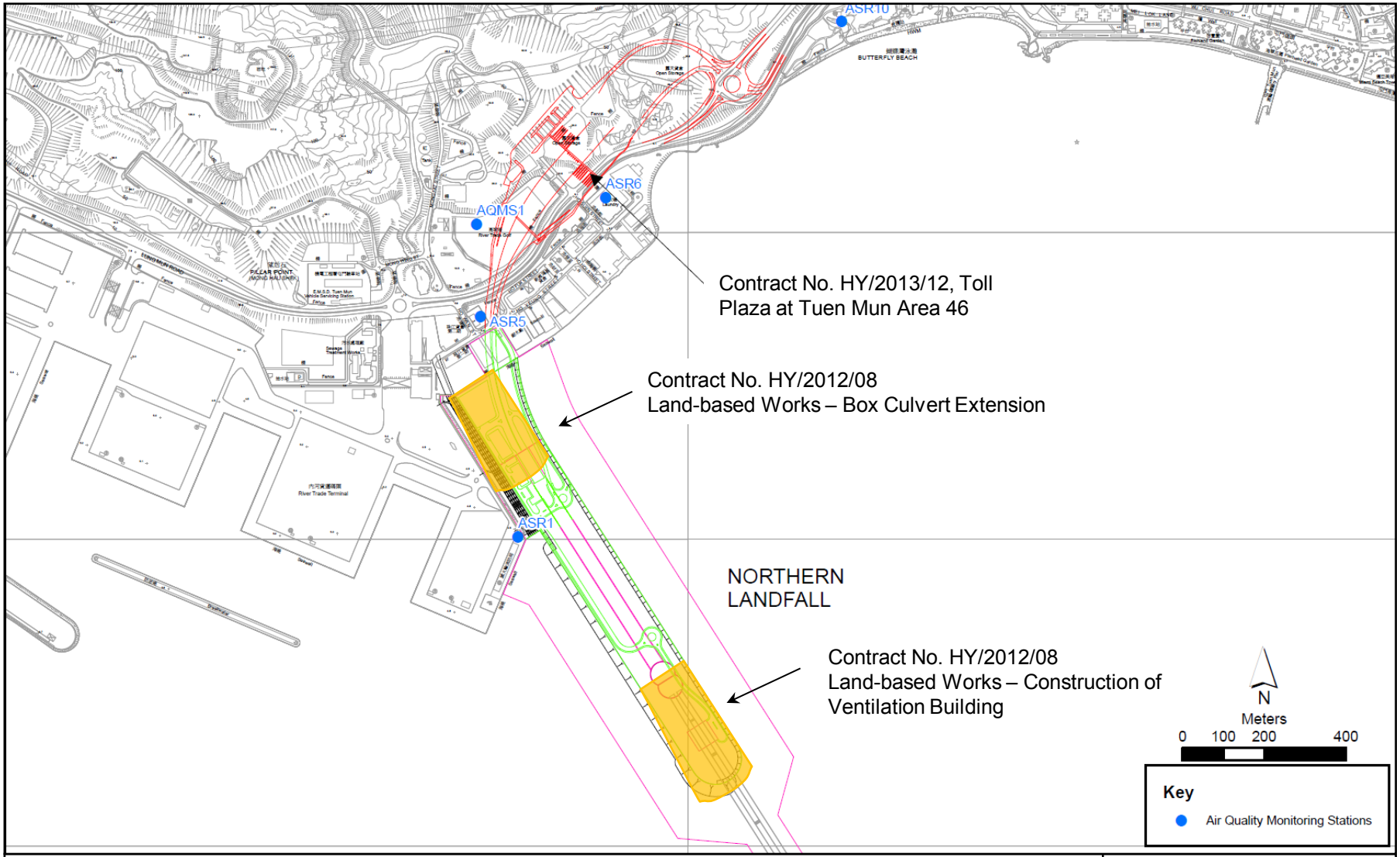


Figure 1

Indicative Construction Works Area on 11 December 2017

DATE: 06/03/2013

Environmental Resources Management

ERM

Email message

Environmental Resources Management

16/F Berkshire House,
25 Westlands Road
Quarry Bay, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jovy.tam@erm.com

To	Ramboll Environ - Hong Kong, Limited (ENPO)
From	ERM- Hong Kong, Limited
Ref/Project number	Contract No. HY/2012/08 Tuen Mun–Chek Lap Kok Link–Northern Connection Sub-sea Tunnel Section
Subject	Notification of Exceedance for Air Quality Impact Monitoring
Date	28 December 2017

ERM

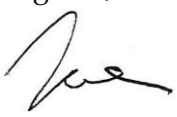
Dear Sir or Madam,

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

0212330_17December2017_24hrTSP_Station ASR5

One Limit Level Exceedance was recorded on 17 December 2017.

Regards,



Mr Jovy Tam
Environmental Team Leader

ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08
TUEN MUN – CHEK LAP KOK LINK – NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

Air Quality Impact Monitoring
Notification of Exceedance

Log No.	**0212330_17December2017_24hrTSP_Station ASR5** **[Total No. of Exceedances = 1]**	
Date	17 December 2017 (Measured) 27 December 2017 (Laboratory results received by ERM)	
Monitoring Station	ASR1, ASR5, ASR6, ASR10 and AQMS1	
Parameter(s) with Exceedance(s)	1-hr TSP, 24-hr TSP	
Action Levels	24-hr TSP (µg/m³)	ASR1 = 213 ASR5 = 238 AQMS1 = 213 ASR6 = 238 ASR10 = 214
	1-hr TSP (µg/m³)	ASR1 = 331 ASR5 = 340 AQMS1 = 335 ASR6 = 338 ASR10 = 337
Limit Levels	1-hr TSP (µg/m³)	500
	24-hr TSP (µg/m³)	260
Measured Levels	Limit Level Exceedance for 24-hr TSP is observed at ASR5 (265 µg/m3) during 1631 – 1631 hrs.	
Works Undertaken (at the time of monitoring event)	From 16:31 (17 Dec) to 07:00 (18 Dec), there were no ground construction works. From 07:00 to 16:31 (18 Dec), box culvert extension was carried out at Works Area Portion N-A and Construction of Ventilation Building at Portion N-C.	
Possible Reason for Action or Limit Level Exceedance(s)	The exceedances are unlikely to be due to the Project, in view of the following: • According to the construction information provided by the Contractor, the majority of ground construction works on 18 December 2017 were box culvert extension at Works Area Portion N-A and Construction of Ventilation Building at Portions N-C. During the period of the land-based construction works, the Contractor has implemented the required mitigation measures as per the EP, approved EIA and Updated EM&A Manual (e.g. water spraying on exposed soil within the Project site and associated works areas; exposed soil covered by tarpaulin sheets). • The limit level exceedance for 24-hr TSP is unlikely to be due to the project as the average wind direction was from ASR5 to the site area during the major construction period. From 16:31 (17 Dec) to 07:00 (18 Dec), there were no ground construction works. From 07:00 to 17:00(18 Dec), the average wind direction ranged between 268° to 324° and station ASR5 are located upstream of the major construction activities at Portion N-A, thus they should not be affected by the dust, if any, generated by the construction activities. • As there were no ground construction works during more than half of the 24-hr TSP monitoring period, the construction works of this Contract on 18 Dec 2017 were unlikely to cause limit level exceedance of 24-hr TSP. Based on the above, the exceedances are unlikely to be due to the project.	

Actions Taken / To Be Taken	Site inspection was carried out on 27 December 2017 to audit proper implementation of mitigation measures. Dust suppression measures were also properly implemented during the site inspections. Photo record is provided in Annex A. Based on the above, no additional action is required. The Contractor has been reminded to implement the required mitigation measures as per the EP, approved EIA and Updated EM&A Manual including watering to maintain all exposed road surfaces and dust sources wet, use of sprinklers for water spraying, covering the materials having the potential to create dust by clean tarpaulin, use of water truck and watering on all exposed soil within the Project site) throughout the construction period. The Contractor was also reminded to ensure all dust mitigating measures are provided at Portion N-A and Portion N-C, where the construction works are carried out.
Remarks	The monitoring results, wind data and the locations of air quality monitoring stations are attached.

ERM

Annex A Photos taken during site inspection

*Note: Photos taken on 27/12/2017

Water spraying was applied frequently during dry conditions.(Works Area Portion N-A)

Exposed soil at Portion N-A was also covered by tarpaulin sheets. (Works Area Portion N-A)

TMCLKL	HY/2012/08	17/12/2017	AQMS1	Sunny	13:48	1-hour TSP	101	ug/m3
TMCLKL	HY/2012/08	17/12/2017	AQMS1	Sunny	14:50	1-hour TSP	61	ug/m3
TMCLKL	HY/2012/08	17/12/2017	AQMS1	Sunny	15:52	1-hour TSP	70	ug/m3
TMCLKL	HY/2012/08	17/12/2017	ASR1	Sunny	13:37	1-hour TSP	175	ug/m3
TMCLKL	HY/2012/08	17/12/2017	ASR1	Sunny	14:39	1-hour TSP	112	ug/m3
TMCLKL	HY/2012/08	17/12/2017	ASR1	Sunny	15:41	1-hour TSP	98	ug/m3
TMCLKL	HY/2012/08	17/12/2017	ASR10	Sunny	13:02	1-hour TSP	63	ug/m3
TMCLKL	HY/2012/08	17/12/2017	ASR10	Sunny	14:04	1-hour TSP	66	ug/m3
TMCLKL	HY/2012/08	17/12/2017	ASR10	Sunny	15:06	1-hour TSP	63	ug/m3
TMCLKL	HY/2012/08	17/12/2017	ASR5	Sunny	13:25	1-hour TSP	137	ug/m3
TMCLKL	HY/2012/08	17/12/2017	ASR5	Sunny	14:27	1-hour TSP	108	ug/m3
TMCLKL	HY/2012/08	17/12/2017	ASR5	Sunny	15:29	1-hour TSP	75	ug/m3
TMCLKL	HY/2012/08	17/12/2017	ASR6	Sunny	13:14	1-hour TSP	83	ug/m3
TMCLKL	HY/2012/08	17/12/2017	ASR6	Sunny	14:16	1-hour TSP	76	ug/m3
TMCLKL	HY/2012/08	17/12/2017	ASR6	Sunny	15:18	1-hour TSP	76	ug/m3
TMCLKL	HY/2012/08	17/12/2017	AQMS1	Sunny	16:54	24-hour TSP	132	ug/m3
TMCLKL	HY/2012/08	17/12/2017	ASR1	Sunny	16:43	24-hour TSP	180	ug/m3
TMCLKL	HY/2012/08	17/12/2017	ASR10	Sunny	16:08	24-hour TSP	88	ug/m3
TMCLKL	HY/2012/08	17/12/2017	ASR5	Sunny	16:31	24-hour TSP	265	ug/m3
TMCLKL	HY/2012/08	17/12/2017	ASR6	Sunny	16:20	24-hour TSP	145	ug/m3

Meteorological Data for Impact Monitoring in the reporting period			
Date (yy-mm-dd)	**Time (24hrs)**	**Average of Wind Speed (m/s)**	**Average of Wind Direction(degree)**
17/12/17	16:00	1.8	340
17/12/17	17:00	1.3	285
17/12/17	18:00	1.3	290
17/12/17	19:00	1.3	213
17/12/17	20:00	0.9	225
17/12/17	21:00	0.9	274
17/12/17	22:00	0.9	353
17/12/17	23:00	1.3	44
18/12/17	0:00	1.3	351
18/12/17	1:00	1.8	348
18/12/17	2:00	2.2	356
18/12/17	3:00	2.2	16
18/12/17	4:00	2.2	19
18/12/17	5:00	1.8	20
18/12/17	6:00	0.9	194
18/12/17	7:00	0.9	268
18/12/17	8:00	2.2	319
18/12/17	9:00	2.2	321
18/12/17	10:00	2.2	319
18/12/17	11:00	3.1	324
18/12/17	12:00	2.7	316
18/12/17	13:00	2.7	320
18/12/17	14:00	2.7	323
18/12/17	15:00	2.2	317
18/12/17	16:00	1.8	312
18/12/17	17:00	1.3	311

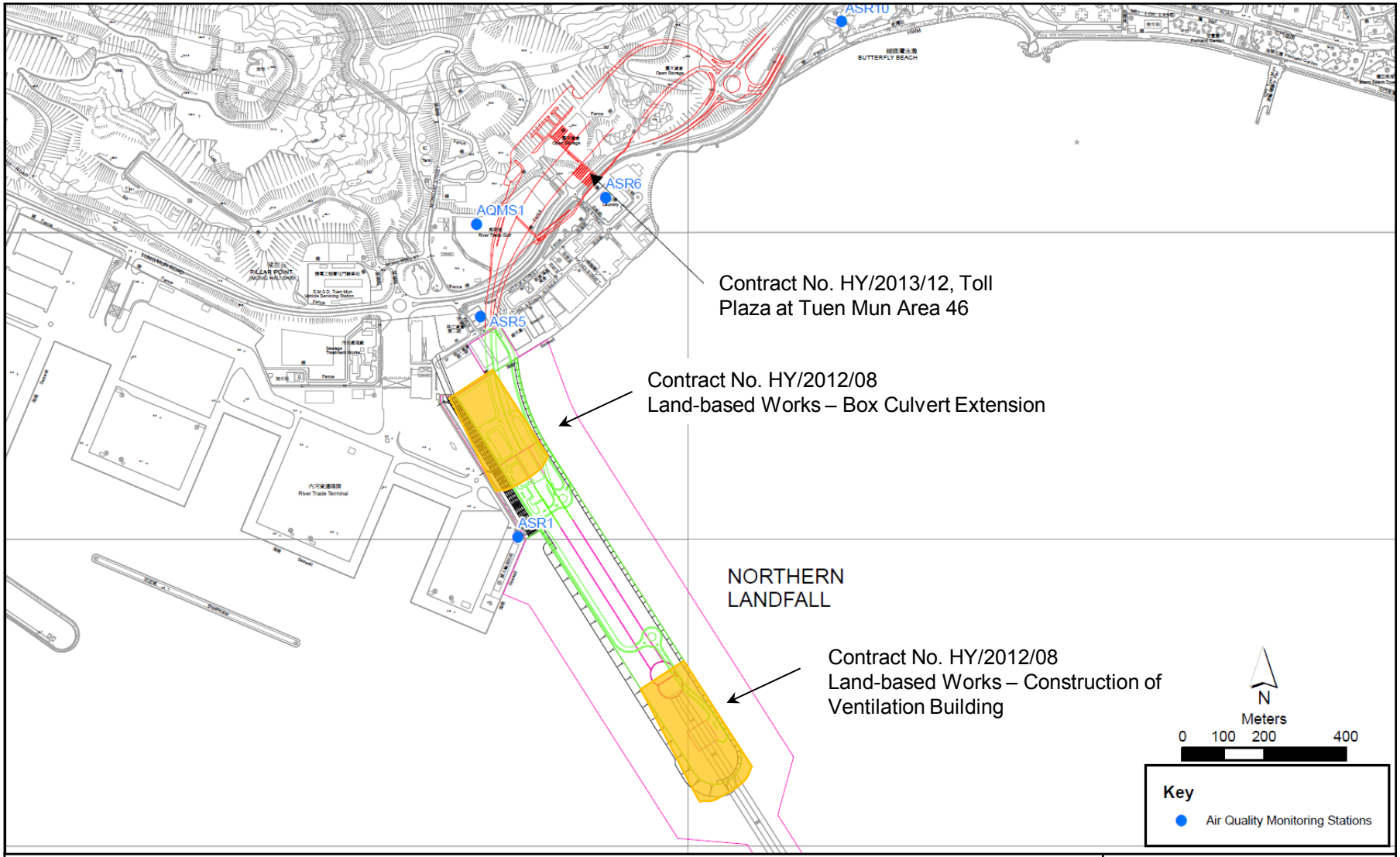


Figure 1

Indicative Construction Works Area on 17 December 2017

DATE: 06/03/2013

Environmental Resources Management

ERM

Contract No. HY/2012/08 Tuen Mun – Chek Lap Kok Link Northern Connection Sub-sea Tunnel Section	**Weekly Water Spraying Record** **每週灑水檢查記錄**

Site Location 地盤位置: Northern Landfall

Date 日期: 11th Dec 2017 to 至 17th Dec 2017

	Time 時間	Monday 星期一	Tuesday 星期二	Wednesday 星期三	Thursday 星期四	Friday 星期五	Saturday 星期六	Sunday 星期日
1	8:00 – 8:45	✓	✓	✓	✓	✓	✓	✓
2	8:45 – 9:30	✓	✓	✓	✓	✓	✓	✓
3	9:30 – 10:15	✓	✓	✓	✓	✓	✓	✓
4	10:15 – 11:00	✓	✓	✓	✓	✓	✓	✓
5	11:00 – 11:45	✓	✓	✓	✓	✓	✓	✓
6	11:45 – 12:30	✓	✓	✓	✓	✓	✓	✓
7	12:30 – 13:15	✓	✓	✓	✓	✓	✓	✓
8	13:15 – 14:00	✓	✓	✓	✓	✓	✓	✓
9	14:00 – 14:45	✓	✓	✓	✓	✓	✓	✓
10	14:45 – 15:30	✓	✓	✓	✓	✓	✓	✓
11	15:30 – 16:45	✓	✓	✓	✓	✓	✓	✓
12	16:45 – 17:30	✓	✓	✓	✓	✓	✓	✓
	Verified by Site Foreman 地盤科文簽署確認							

Night shift 夜間工作 (if necessary 如需要)								
	17:30 – 19:00							
	19:00 – 20:30							
	20:30 – 22:00							
	22:00 – 23:00							

*Please - tick (√) in the box if complete the spraying of water.
circle (O) in the box if it is raining.

*如果 - 已經完成灑水, 請於方格內加上剔號(√)。
是下雨天, 請於方格內加上圓圈(O)。

Remarks:

(1) Pursuant to EP Clause 3.15, the Permit Holder shall undertake watering at least 12 times per day on all exposed soil within the Project site and associated work areas in Tuen Mun area throughout the construction phase.
(2) Spraying position includes the main haul road, open area, slopes, stockpiles and any other dusty materials.
(3) If it is raining, no water spraying is needed.
(4) The no of spraying will be increased due to site condition.

備註:

(1) 根據環境許可證 3.15 條例，在整個施工階段內，許可證持有人須每天至少 12 次在屯門區項目工地和相關的工作區域內的所有暴露土壤灑水。
(2) 灑水位置包括主要運輸道路，空曠地帶，斜坡，存料堆，以及任何其他產生塵埃物料。
(3) 當下雨時，地盤將不需要灑水。
(4) 如果地盤情況更改或有需要時，灑水次數會相應增加。

Dragages Hong Kong	Contract No. HY/2012/08 Tuen Mun – Chek Lap Kok Link Northern Connection Sub-sea Tunnel Section	**Weekly Water Spraying Record** **每週灑水檢查記錄**

Site Location 地盤位置: Northern Landfall

Date 日期: 18th Dec 2017 to 至 24th Dec. 2017

	Time 時間	Monday 星期一	Tuesday 星期二	Wednesday 星期三	Thursday 星期四	Friday 星期五	Saturday 星期六	Sunday 星期日
1	8:00 – 8:45	✓	✓	✓	✓	✓	✓	✓
2	8:45 – 9:30	✓	✓	✓	✓	✓	✓	✓
3	9:30 – 10:15	✓	✓	✓	✓	✓	✓	✓
4	10:15 – 11:00	✓	✓	✓	✓	✓	✓	✓
5	11:00 – 11:45	✓	✓	✓	✓	✓	✓	✓
6	11:45 – 12:30	✓	✓	✓	✓	✓	✓	✓
7	12:30 – 13:15	✓	✓	✓	✓	✓	✓	✓
8	13:15 – 14:00	✓	✓	✓	✓	✓	✓	✓
9	14:00 – 14:45	✓	✓	✓	✓	✓	✓	✓
10	14:45 – 15:30	✓	✓	✓	✓	✓	✓	✓
11	15:30 – 16:45	✓	✓	✓	✓	✓	✓	✓
12	16:45 – 17:30	✓	✓	✓	✓	✓	✓	✓
	Verified by Site Foreman 地盤科文簽署確認	✓	✓	✓	✓	✓	✓	✓

Night shift 夜間工作 (if necessary 如需要)								
	17:30 – 19:00							
	19:00 – 20:30							
	20:30 – 22:00							
	22:00 – 23:00							

*Please - tick (√) in the box if complete the spraying of water.
circle (O) in the box if it is raining.

*如果 - 已經完成灑水, 請於方格內加上剔號(√)。
是下雨天, 請於方格內加上圓圈(O)。

Remarks:

(1) Pursuant to EP Clause 3.15, the Permit Holder shall undertake watering at least 12 times per day on all exposed soil within the Project site and associated work areas in Tuen Mun area throughout the construction phase.
(2) Spraying position includes the main haul road, open area, slopes, stockpiles and any other dusty materials.
(3) If it is raining, no water spraying is needed.
(4) The no of spraying will be increased due to site condition.

備註:

(1) 根據環境許可證 3.15 條例，在整個施工階段內，許可證持有人須每天至少 12 次在屯門區項目工地和相關的工作區域內的所有暴露土壤灑水。
(2) 灑水位置包括主要運輸道路，空曠地帶，斜坡，存料堆，以及任何其他產生塵埃物料。
(3) 當下雨時，地盤將不需要灑水。
(4) 如果地盤情況更改或有需要時，灑水次數會相應增加。

Email message

Environmental Resources Management

16/F Berkshire House,
25 Westlands Road
Quarry Bay, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jovy.tam@erm.com

To	Ramboll Environ - Hong Kong, Limited (ENPO)
From	ERM- Hong Kong, Limited
Ref/Project number	Contract No. HY/2012/08 Tuen Mun–Chek Lap Kok Link–Northern Connection Sub-sea Tunnel Section
Subject	Notification of Exceedance for Air Quality Impact Monitoring
Date	2 January 2018

ERM

Dear Sir or Madam,

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

0212330_20December2017_1hrTSP_Station ASR1
0212330_20December2017_1hrTSP_Station ASR5

Two Action Level Exceedances were recorded on 20 December 2017.

Regards,

Mr Jovy Tam
Environmental Team Leader

ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08
TUEN MUN – CHEK LAP KOK LINK – NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

Air Quality Impact Monitoring
Notification of Exceedance

Log No.	**0212330_20December2017_1hrTSP_Station ASR1** **0212330_20December2017_1hrTSP_Station ASR5** **[Total No. of Exceedances = 2]**	
Date	20 December 2017 (Measured) 1 January 2018 (Laboratory results received by ERM)	
Monitoring Station	ASR1, ASR5, ASR6, ASR10 and AQMS1	
Parameter(s) with Exceedance(s)	1-hr TSP	
Action Levels	24-hr TSP (µg/m³)	ASR1 = 213 ASR5 = 238 AQMS1 = 213 ASR6 = 238 ASR10 = 214
	1-hr TSP (µg/m³)	ASR1 = 331 ASR5 = 340 AQMS1 = 335 ASR6 = 338 ASR10 = 337
Limit Levels	1-hr TSP (µg/m³)	500
	24-hr TSP (µg/m³)	260
Measured Levels	Action Level Exceedance for 1-hr TSP is observed at ASR1 (357 µg/m3) during 1356 – 1456 hrs. Action Level Exceedance for 1-hr TSP is observed at ASR5 (372 µg/m3) during 1344 – 1444 hrs.	
Works Undertaken (at the time of monitoring event)	On 20 December 2017, box culvert extension was carried out at Works Area Portion N-A and Construction of Ventilation Building at Portion N-C.	
Possible Reason for Action or Limit Level Exceedance(s)	The exceedances are unlikely to be due to the Project, in view of the following: • According to the construction information provided by the Contractor, the majority of ground construction works on 20 December 2017 were box culvert extension at Works Area Portion N-A and Construction of Ventilation Building at Portions N-C. During the period of the land-based construction works, the Contractor has implemented the required mitigation measures as per the EP, approved EIA and Updated EM&A Manual (e.g. water spraying on exposed soil within the Project site and associated works areas; exposed soil covered by tarpaulin sheets). • The exceedances are unlikely to be due to the project as dust suppression measures were implemented properly on the works area. Water spraying was applied at Portion N-A and N-C. Exposed soil at Portion N-A was also covered by tarpaulin sheets to prevent dust. Based on the above, the exceedances are unlikely to be due to the project.	

Actions Taken / To Be Taken	Follow-up site inspection was carried out on 4 January 2018. Box culvert extension was carried out at Works Area Portion N-A and Construction of Ventilation Building was carried out at Portion N-C. Water spraying was applied frequently. Exposed soil at Portion N-A was covered by tarpaulin sheets and water spraying was also applied to prevent dust. Photo record is provided in Annex A. As dust suppression measures were properly implemented during the site inspections. Based on the above, no additional action is required. The Contractor has been reminded to implement the required mitigation measures as per the EP, approved EIA and Updated EM&A Manual including watering to maintain all exposed road surfaces and dust sources wet, use of sprinklers for water spraying, covering the materials having the potential to create dust by clean tarpaulin, use of water truck and watering on all exposed soil within the Project site) throughout the construction period. The Contractor was also reminded to ensure all dust mitigating measures are provided at Portion N-A and Portion N-C, where the construction works are carried out.
Remarks	The monitoring results and the locations of air quality monitoring stations are attached.

TMCLKL	HY/2012/08	20/12/2017	AQMS1	Sunny	14:08	1-hour TSP	163	ug/m3
TMCLKL	HY/2012/08	20/12/2017	AQMS1	Sunny	15:10	1-hour TSP	125	ug/m3
TMCLKL	HY/2012/08	20/12/2017	AQMS1	Sunny	16:12	1-hour TSP	121	ug/m3
TMCLKL	HY/2012/08	20/12/2017	ASR1	Sunny	13:56	1-hour TSP	357	ug/m3
TMCLKL	HY/2012/08	20/12/2017	ASR1	Sunny	14:58	1-hour TSP	210	ug/m3
TMCLKL	HY/2012/08	20/12/2017	ASR1	Sunny	16:00	1-hour TSP	218	ug/m3
TMCLKL	HY/2012/08	20/12/2017	ASR10	Sunny	13:22	1-hour TSP	111	ug/m3
TMCLKL	HY/2012/08	20/12/2017	ASR10	Sunny	14:24	1-hour TSP	116	ug/m3
TMCLKL	HY/2012/08	20/12/2017	ASR10	Sunny	15:26	1-hour TSP	196	ug/m3
TMCLKL	HY/2012/08	20/12/2017	ASR5	Sunny	13:44	1-hour TSP	372	ug/m3
TMCLKL	HY/2012/08	20/12/2017	ASR5	Sunny	14:46	1-hour TSP	216	ug/m3
TMCLKL	HY/2012/08	20/12/2017	ASR5	Sunny	15:48	1-hour TSP	167	ug/m3
TMCLKL	HY/2012/08	20/12/2017	ASR6	Sunny	13:33	1-hour TSP	186	ug/m3
TMCLKL	HY/2012/08	20/12/2017	ASR6	Sunny	14:25	1-hour TSP	150	ug/m3
TMCLKL	HY/2012/08	20/12/2017	ASR6	Sunny	15:37	1-hour TSP	190	ug/m3
TMCLKL	HY/2012/08	20/12/2017	AQMS1	Sunny	17:14	24-hour TSP	92	ug/m3
TMCLKL	HY/2012/08	20/12/2017	ASR1	Sunny	17:02	24-hour TSP	158	ug/m3
TMCLKL	HY/2012/08	20/12/2017	ASR10	Sunny	16:28	24-hour TSP	62	ug/m3
TMCLKL	HY/2012/08	20/12/2017	ASR5	Sunny	16:50	24-hour TSP	125	ug/m3
TMCLKL	HY/2012/08	20/12/2017	ASR6	Sunny	16:39	24-hour TSP	100	ug/m3

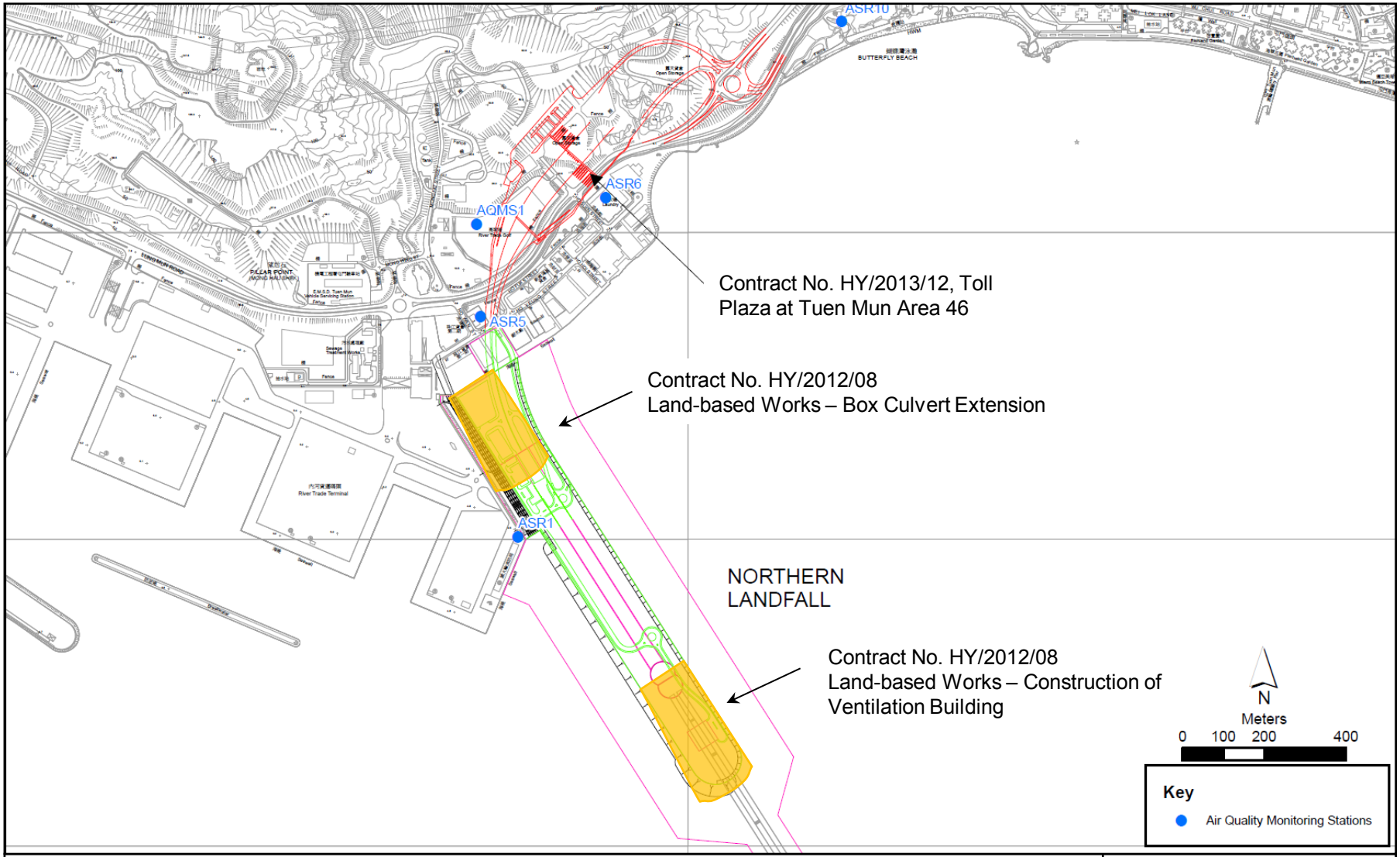


Figure 1

Indicative Construction Works Area on 20 December 2017

DATE: 06/03/2013

Environmental Resources Management

ERM

ERM

Annex A Photos taken during site inspection

*Note: Photos taken on 4/1/2017

Water spraying was applied frequently during dry conditions.(Works Area Portion N-A)

Exposed soil at Portion N-A was covered by tarpaulin sheets. (Works Area Portion N-A)

ERM

Annex A Photos taken during site inspection

*Note: Photos taken on 4/1/2017

Water spraying was applied on the exposed soil. (Works Area Portion N-A)

Water spraying was applied frequently during dry conditions.(Works Area Portion N-B)

Meteorological Data for Impact Monitoring in the reporting period			
Date (yyyy-mm-dd)	**Time (24hrs)**	**Average of Wind Speed (m/s)**	**Average of Wind Direction(degree)**
2017-12-20	0:00	4.9	11
2017-12-20	1:00	4.9	5
2017-12-20	2:00	4	2
2017-12-20	3:00	2.7	7
2017-12-20	4:00	3.6	359
2017-12-20	5:00	4.5	3
2017-12-20	6:00	3.6	4
2017-12-20	7:00	2.2	344
2017-12-20	8:00	1.3	305
2017-12-20	9:00	2.7	46
2017-12-20	10:00	3.6	42
2017-12-20	11:00	3.1	19
2017-12-20	12:00	2.2	44
2017-12-20	13:00	2.2	351
2017-12-20	14:00	2.2	350
2017-12-20	15:00	1.3	344
2017-12-20	16:00	0.9	348
2017-12-20	17:00	1.8	339
2017-12-20	18:00	0.9	346
2017-12-20	19:00	0.9	352
2017-12-20	20:00	0.9	70
2017-12-20	21:00	1.3	93
2017-12-20	22:00	1.3	88
2017-12-20	23:00	0.9	355

Email message

Environmental Resources Management

16/F Berkshire House,
25 Westlands Road
Quarry Bay, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jovy.tam@erm.com

To	Ramboll Environ - Hong Kong, Limited (ENPO)
From	ERM- Hong Kong, Limited
Ref/Project number	Contract No. HY/2012/08 Tuen Mun–Chek Lap Kok Link–Northern Connection Sub-sea Tunnel Section
Subject	Notification of Exceedance for Air Quality Impact Monitoring
Date	5 January 2018

ERM

Dear Sir or Madam,

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

0212330_26December2017_1hrTSP_Station ASR1

One Action Level Exceedance was recorded on 26 December 2017.

Regards,

Mr Jovy Tam
Environmental Team Leader

ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08
TUEN MUN – CHEK LAP KOK LINK – NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

Air Quality Impact Monitoring
Notification of Exceedance

Log No.	**0212330_26December2017_1hrTSP_Station ASR1** **[Total No. of Exceedances = 1]**	
Date	26 December 2017 (Measured) 5 January 2018 (Laboratory results received by ERM)	
Monitoring Station	ASR1, ASR5, ASR6, ASR10 and AQMS1	
Parameter(s) with Exceedance(s)	1-hr TSP	
Action Levels	24-hr TSP (µg/m³)	ASR1 = 213 ASR5 = 238 AQMS1 = 213 ASR6 = 238 ASR10 = 214
	1-hr TSP (µg/m³)	ASR1 = 331 ASR5 = 340 AQMS1 = 335 ASR6 = 338 ASR10 = 337
Limit Levels	1-hr TSP (µg/m³)	500
	24-hr TSP (µg/m³)	260
Measured Levels	Action Level Exceedance for 1-hr TSP is observed at ASR1 (407 µg/m3) during 1121 - 1221 hrs.	
Works Undertaken (at the time of monitoring event)	On 26 December 2017, TBM works were carried out.	
Possible Reason for Action or Limit Level Exceedance(s)	The exceedances are unlikely to be due to the Project, in view of the following: • According to the construction information provided by the Contractor, there were only TBM works on 26 December 2017 and there were no ground construction works. During the period of the land-based construction works, the Contractor has implemented the required mitigation measures as per the EP, approved EIA and Updated EM&A Manual (e.g. water spraying on exposed soil within the Project site and associated works areas; exposed soil covered by tarpaulin sheets). • The exceedances are unlikely to be due to the project as dust suppression measures were implemented properly on the works area. Water spraying was applied during dry conditions. Exposed soil at Portion N-A was also covered by tarpaulin sheets to prevent dust. Based on the above, the exceedances are unlikely to be due to the project.	

Actions Taken / To Be Taken	Follow-up site inspection was carried out on 10 January 2018. Box culvert extension was carried out at Works Area Portion N-A and Construction of Ventilation Building was carried out at Portion N-C. Water spraying was applied frequently. Exposed soil at Portion N-A was covered by tarpaulin sheets and water spraying was also applied to prevent dust. Photo record is provided in Annex A. As dust suppression measures were properly implemented during the site inspections. Based on the above, no additional action is required. The Contractor has been reminded to implement the required mitigation measures as per the EP, approved EIA and Updated EM&A Manual including watering to maintain all exposed road surfaces and dust sources wet, use of sprinklers for water spraying, covering the materials having the potential to create dust by clean tarpaulin, use of water truck and watering on all exposed soil within the Project site) throughout the construction period. The Contractor was also reminded to ensure all dust mitigating measures are provided at Portion N-A and Portion N-C, where the construction works are carried out.
Remarks	The monitoring results and the locations of air quality monitoring stations are attached.

ERM

Annex A Photos taken during site inspection

*Note: Photos taken on 10/1/2017

Water spraying was applied frequently during dry conditions.(Works Area Portion N-C)

Exposed soil at Portion N-A was covered by tarpaulin sheets. (Works Area Portion N-A)

ERM

Annex A Photos taken during site inspection

*Note: Photos taken on 10/1/2017

Water spraying was applied frequently during dry conditions.(Works Area Portion N-C)

Water spraying was applied frequently during dry conditions.(Works Area Portion N-B)

TMCLKL	HY/2012/08	26/12/2017	AQMS1	Sunny	9:27	1-hour TSP	129	ug/m3
TMCLKL	HY/2012/08	26/12/2017	AQMS1	Sunny	10:29	1-hour TSP	167	ug/m3
TMCLKL	HY/2012/08	26/12/2017	AQMS1	Sunny	11:31	1-hour TSP	161	ug/m3
TMCLKL	HY/2012/08	26/12/2017	ASR1	Sunny	9:17	1-hour TSP	131	ug/m3
TMCLKL	HY/2012/08	26/12/2017	ASR1	Sunny	10:19	1-hour TSP	144	ug/m3
TMCLKL	HY/2012/08	26/12/2017	ASR1	Sunny	11:21	1-hour TSP	407	ug/m3
TMCLKL	HY/2012/08	26/12/2017	ASR10	Sunny	8:45	1-hour TSP	112	ug/m3
TMCLKL	HY/2012/08	26/12/2017	ASR10	Sunny	9:47	1-hour TSP	173	ug/m3
TMCLKL	HY/2012/08	26/12/2017	ASR10	Sunny	10:49	1-hour TSP	118	ug/m3
TMCLKL	HY/2012/08	26/12/2017	ASR5	Sunny	9:06	1-hour TSP	180	ug/m3
TMCLKL	HY/2012/08	26/12/2017	ASR5	Sunny	10:08	1-hour TSP	211	ug/m3
TMCLKL	HY/2012/08	26/12/2017	ASR5	Sunny	11:10	1-hour TSP	169	ug/m3
TMCLKL	HY/2012/08	26/12/2017	ASR6	Sunny	8:55	1-hour TSP	196	ug/m3
TMCLKL	HY/2012/08	26/12/2017	ASR6	Sunny	9:57	1-hour TSP	180	ug/m3
TMCLKL	HY/2012/08	26/12/2017	ASR6	Sunny	10:59	1-hour TSP	165	ug/m3
TMCLKL	HY/2012/08	26/12/2017	AQMS1	Sunny	12:33	24-hour TSP	59	ug/m3
TMCLKL	HY/2012/08	26/12/2017	ASR1	Sunny	12:23	24-hour TSP	81	ug/m3
TMCLKL	HY/2012/08	26/12/2017	ASR10	Sunny	11:51	24-hour TSP	59	ug/m3
TMCLKL	HY/2012/08	26/12/2017	ASR5	Sunny	12:12	24-hour TSP	84	ug/m3
TMCLKL	HY/2012/08	26/12/2017	ASR6	Sunny	12:01	24-hour TSP	83	ug/m3

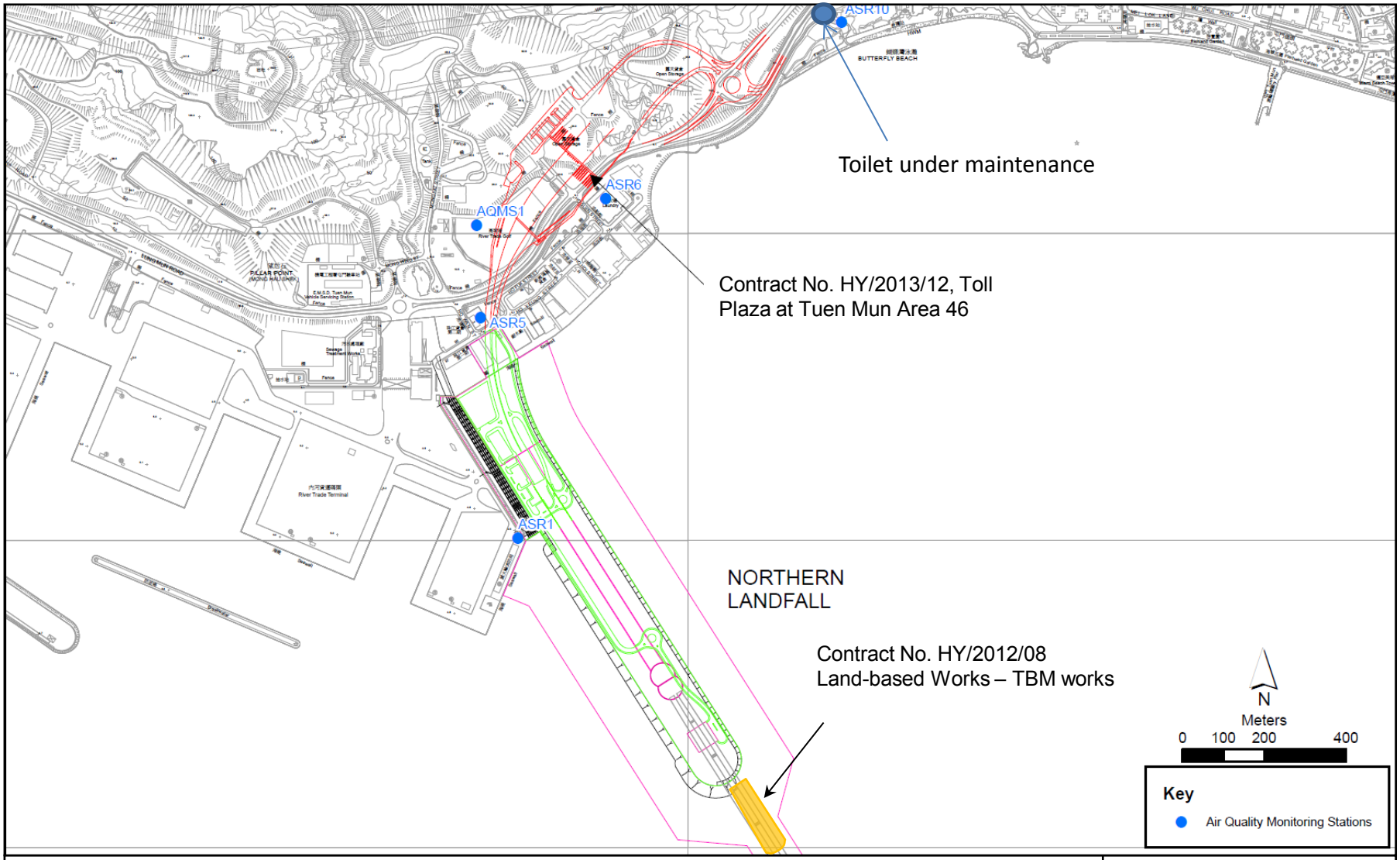


Figure 1

Indicative Construction Works Area on 26 December 2017

DATE: 06/03/2013

Environmental Resources Management

ERM

Meteorological Data for Impact Monitoring in the reporting period			
Date (yy-mm-dd)	**Time (24hrs)**	**Average of Wind Speed (m/s)**	**Average of Wind Direction(degree)**
26/12/17	0:00	1.3	94
26/12/17	1:00	2.2	88
26/12/17	2:00	1.3	70
26/12/17	3:00	1.8	92
26/12/17	4:00	0.9	50
26/12/17	5:00	0.9	14
26/12/17	6:00	0.9	73
26/12/17	7:00	1.3	95
26/12/17	8:00	1.3	91
26/12/17	9:00	1.3	47
26/12/17	10:00	1.8	12
26/12/17	11:00	1.8	10
26/12/17	12:00	1.3	19
26/12/17	13:00	1.8	225
26/12/17	14:00	1.3	269
26/12/17	15:00	1.3	264
26/12/17	16:00	0.9	230
26/12/17	17:00	0.4	257
26/12/17	18:00	0.4	312
26/12/17	19:00	1.8	93
26/12/17	20:00	3.1	91
26/12/17	21:00	3.1	89
26/12/17	22:00	2.7	90
26/12/17	23:00	2.7	93

Contract No. HY/2012/08 Tuen Mun – Chek Lap Kok Link Northern Connection Sub-sea Tunnel Section	**Weekly Water Spraying Record** **每週灑水檢查記錄**

Site Location 地盤位置: Northern Landfall

Date 日期: 25th Dec. 2017 to 至 31st Dec. 2017

	Time 時間	Monday 星期一	Tuesday 星期二	Wednesday 星期三	Thursday 星期四	Friday 星期五	Saturday 星期六	Sunday 星期日
1	8:00 – 8:45	√	√	√	√	√	√	√
2	8:45 – 9:30	√	√	√	√	√	√	√
3	9:30 – 10:15	√	√	√	√	√	√	√
4	10:15 – 11:00	√	√	√	√	√	√	√
5	11:00 – 11:45	√	√	√	√	√	√	√
6	11:45 – 12:30	√	√	√	√	√	√	√
7	12:30 – 13:15	√	√	√	√	√	√	√
8	13:15 – 14:00	√	√	√	√	√	√	√
9	14:00 – 14:45	√	√	√	√	√	√	√
10	14:45 – 15:30	√	√	√	√	√	√	√
11	15:30 – 16:45	√	√	√	√	√	√	√
12	16:45 – 17:30	√	√	√	√	√	√	√
	Verified by Site Foreman 地盤科文簽署確認	√	√	√	√	√	√	√

Night shift 夜間工作 (if necessary 如需要)								
	17:30 – 19:00							
	19:00 – 20:30							
	20:30 – 22:00							
	22:00 – 23:00							

*Please - tick (√) in the box if complete the spraying of water.
circle (O) in the box if it is raining.

*如果 - 已經完成灑水, 請於方格內加上剔號(√)。
是下雨天, 請於方格內加上圓圈(O)。

Remarks:

(1) Pursuant to EP Clause 3.15, the Permit Holder shall undertake watering at least 12 times per day on all exposed soil within the Project site and associated work areas in Tuen Mun area throughout the construction phase.
(2) Spraying position includes the main haul road, open area, slopes, stockpiles and any other dusty materials.
(3) If it is raining, no water spraying is needed.
(4) The no of spraying will be increased due to site condition.

備註:

(1) 根據環境許可證 3.15 條例，在整個施工階段內，許可證持有人須每天至少 12 次在屯門區項目工地和相關的工作區域內的所有暴露土壤灑水。
(2) 灑水位置包括主要運輸道路，空曠地帶，斜坡，存料堆，以及任何其他產生塵埃物料。
(3) 當下雨時，地盤將不需要灑水。
(4) 如果地盤情況更改或有需要時，灑水次數會相應增加。

Email message

Environmental Resources Management

16/F Berkshire House,
25 Westlands Road
Quarry Bay, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jovy.tam@erm.com

To	ENVIRON - Hong Kong, Limited (ENPO)
From	ERM- Hong Kong, Limited
Ref/Project number	Contract No. HY/2012/08 Tuen Mun–Chek Lap Kok Link–Northern Connection Sub-sea Tunnel Section
Subject	Notification of Exceedance for Water Quality Impact Monitoring
Date	22 November 2017

ERM

Dear Sir or Madam,

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

Action Level Exceedance
0212330_22November2017_Depth-averaged SS_F_Station_IS15

A total of one Action Level Exceedance was recorded on 22 November 2017.

Regards,

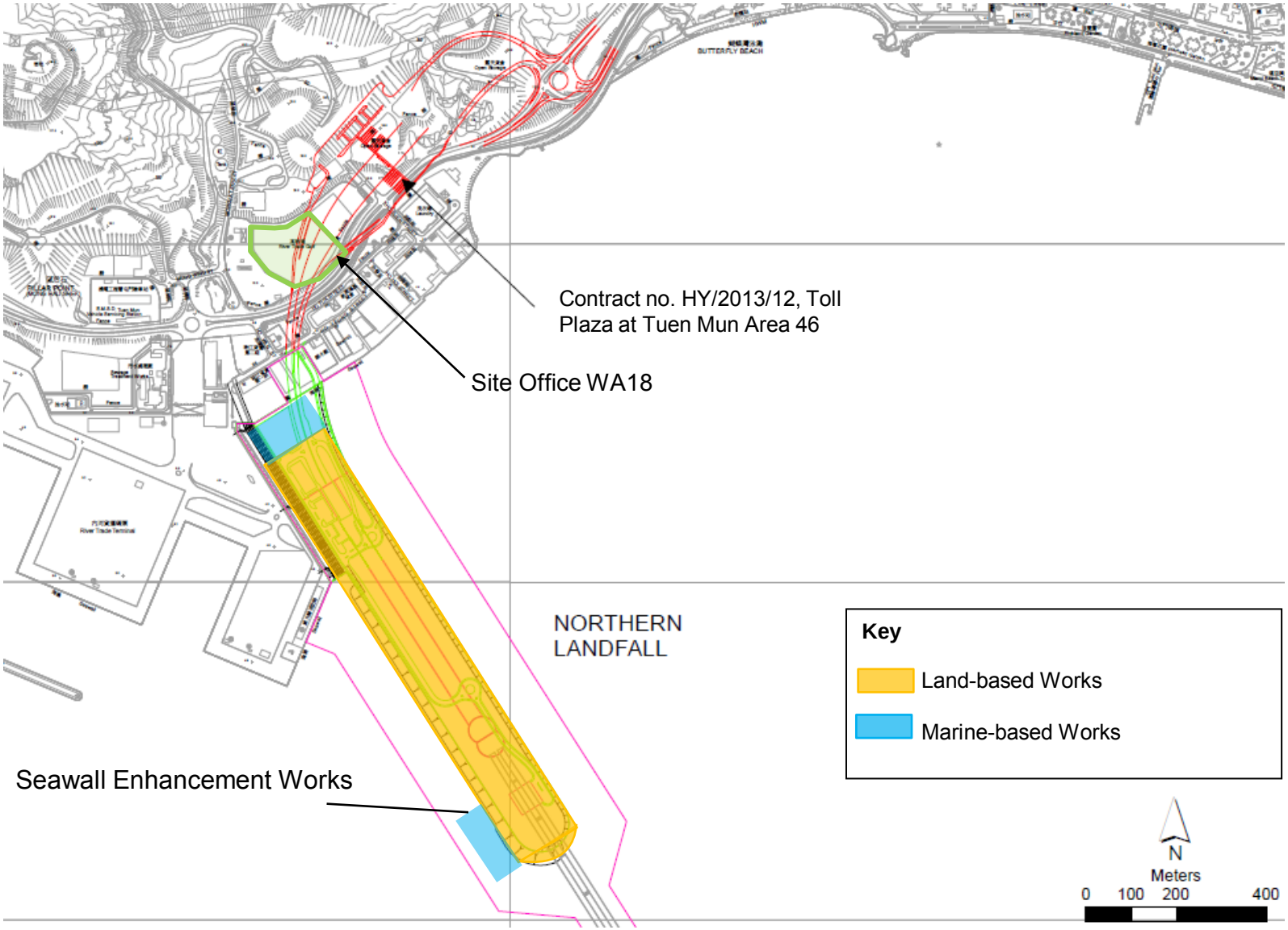
Mr Jovy Tam
Environmental Team Leader

ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08
TUEN MUN – CHEK LAP KOK LINK – NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

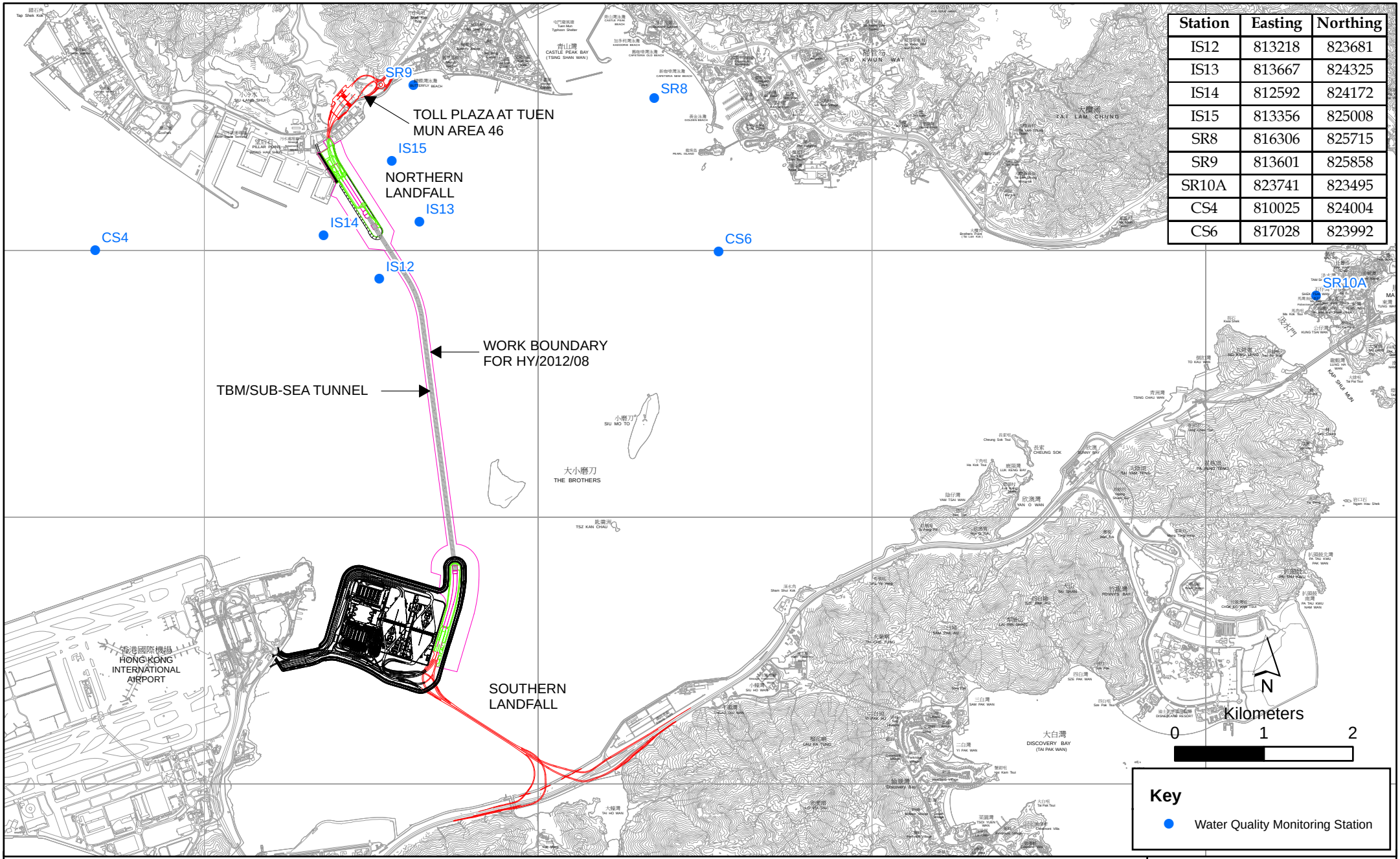
Marine Water Quality Impact Monitoring
Notification of Exceedance

Log No.	**0212330_22November2017_Depth-averaged SS_F_Station_IS15** **[Total No. of Exceedances = 1]**	
Date	22 November 2017 (Measured) 23 November 2017(*In situ* results received by ERM) 1 December 2017 (Laboratory results received by ERM)	
Monitoring Station	CS4, CS6, SR8, SR9, SR10A, IS12, IS13, IS14, IS15	
Parameter(s) with Exceedance(s)	Depth-averaged Suspended Solids (SS, mg/L)	
Action Levels	SS	120% of upstream control station at the same tide of the same day (i.e., CS6: 9.2 x 120% = 11.0 mg/L for mid-flood; CS4: 13.5 x 120% = 16.2 mg/L for mid-ebb) and 95%-ile of baseline data (i.e., 23.5 mg/L).
Limit Levels	SS	130% of upstream control station at the same tide of the same day and 10mg/L for WSD Seawater Intakes at Tuen Mun (i.e., CS6: 9.2 x 130% = 12.0 mg/L for mid-flood; CS4: 13.5 x 130% = 17.6 mg/L for mid-ebb) and 99%-ile of baseline data. (i.e., 34.4 mg/L)
Measured Levels	Action Level Exceedance for SS is observed at IS15 (25.8 mg/L) during mid-flood tide.	
Works Undertaken (at the time of monitoring event)	According to the information provided by the Contractor, marine works conducted on 22 November 2017 included: • Seawall Enhancement Works at Portion N-C	
Possible Reason for Action or Limit Level Exceedance(s)	The exceedances are unlikely to be due to the Project, in view of the following: • Apart from observed exceedances, SS levels at all other monitoring stations were in compliance with the Action and Limit Levels during both mid-flood and mid-ebb tides on the same day. • IS12 and IS14 were closer to the marine-based construction area than the WQM stations where exceedances were observed. While average SS value recorded at IS12 and IS14 were in compliance with the Action and Limit Levels in both mid-ebb and mid-flood tides, the observed exceedances at other remote stations were unlikely to be due to the marine works of this Contract. • The average current flow direction during flood tide was from CS6 to CS4. The current flow direction did not favour the dispersion of suspended solids to IS15, if any, generated by the marine works under this Contract. Consider the normal average SS value recorded at IS12 and IS14, which is the closest WQM station to the marine-based construction area, the observed exceedances at other remote stations were unlikely to be due to the marine works of this Contract. • Depth-averaged Turbidity levels at all stations were in compliance with the Action and Limit Levels during both tides on the same day. Likewise, dissolved oxygen (DO) at all levels were also in compliance with the Action and Limit Levels in both mid-ebb and mid-flood tides.	
Actions Taken / To Be Taken	No immediate action is considered necessary. The ET will monitor for future trends in exceedances.	
Remarks	The monitoring results and the locations of water quality monitoring stations are attached.	



Environmental Resources Management

ERM



Station	Easting	Northing
IS12	813218	823681
IS13	813667	824325
IS14	812592	824172
IS15	813356	825008
SR8	816306	825715
SR9	813601	825858
SR10A	823741	823495
CS4	810025	824004
CS6	817028	823992

Figure 2.2

Water Quality Monitoring Station

File: T:\GIS\CONTRACT\0212330\Mxd\0212330_WQMS.mxd
Date: 15/11/2013

Environmental Resources Management

ERM

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	CS6	14:54	Surface	1	1	23.8	8.0	32.2	5.7	5.7	3.4	5.0	7.1	8.9
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	CS6	14:54	Surface	1	2	23.8	8.0	32.3	5.7		3.4		8.4	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	CS6	14:54	Middle	2	1	23.7	8.0	32.3	5.7		5.1		8.5	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	CS6	14:54	Middle	2	2	23.8	8.0	32.3	5.6		4.9		9.3	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	CS6	14:54	Bottom	3	1	23.7	8.0	32.3	5.7	5.7	6.6		10.0	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	CS6	14:54	Bottom	3	2	23.8	8.0	32.3	5.6		6.7		10.3	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	CS4	13:39	Surface	1	1	23.7	8.1	31.6	6.0	5.9	6.3	8.8	9.9	13.5
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	CS4	13:39	Surface	1	2	23.7	8.0	31.6	5.9		6.2		8.9	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	CS4	13:39	Middle	2	1	23.7	8.1	31.6	5.9		6.5		13.5	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	CS4	13:39	Middle	2	2	23.7	8.0	31.6	5.9		6.8		13.7	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	CS4	13:39	Bottom	3	1	23.7	8.1	31.6	5.9	5.9	13.5		17.1	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	CS4	13:39	Bottom	3	2	23.7	8.0	31.6	5.9		13.7		17.7	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	SR8	14:40	Surface	1	1	23.9	8.0	31.8	5.8	5.8	5.9	7.7	8.7	8.4
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	SR8	14:40	Surface	1	2	23.9	8.0	31.8	5.8		5.5		7.1	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	SR8	14:40	Middle	2	1									
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	SR8	14:40	Middle	2	2									
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	SR8	14:40	Bottom	3	1	23.8	8.0	31.8	5.9	5.9	9.9		8.8	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	SR8	14:40	Bottom	3	2	23.8	8.0	31.9	5.9		9.5		8.8	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	SR9	14:25	Surface	1	1	24.0	8.0	31.8	5.9	5.9	4.8	5.8	6.8	6.7
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	SR9	14:25	Surface	1	2	24.0	8.0	31.8	5.9		4.7		6.3	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	SR9	14:25	Middle	2	1									
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	SR9	14:25	Middle	2	2									
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	SR9	14:25	Bottom	3	1	23.7	8.0	31.8	5.8	5.8	6.9		7.0	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	SR9	14:25	Bottom	3	2	23.8	8.0	31.8	5.8		6.8		6.7	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	SR10A	15:38	Surface	1	1	23.6	8.0	32.1	6.1	6.1	5.8	5.5	7.0	6.9
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	SR10A	15:38	Surface	1	2	23.8	7.8	31.9	6.1		5.7		7.2	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	SR10A	15:38	Middle	2	1	23.6	8.0	32.1	6.1		5.3		7.8	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	SR10A	15:38	Middle	2	2	23.8	7.8	31.9	6.1		5.2		6.0	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	SR10A	15:38	Bottom	3	1	23.6	8.0	32.1	6.2	6.2	5.4		6.4	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	SR10A	15:38	Bottom	3	2	23.8	7.8	31.9	6.2		5.4		6.7	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS12	14:02	Surface	1	1	23.7	8.1	31.7	6.1	5.9	3.6	4.7	5.9	6.8
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS12	14:02	Surface	1	2	23.8	8.0	31.7	6.1		3.7		5.9	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS12	14:02	Middle	2	1	23.8	8.0	31.9	5.7		4.4		7.0	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS12	14:02	Middle	2	2	23.8	8.0	31.9	5.7		4.6		6.4	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS12	14:02	Bottom	3	1	23.8	8.0	32.0	5.8	5.8	6.1		7.6	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS12	14:02	Bottom	3	2	23.8	8.0	32.0	5.7		6.0		8.2	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS13	14:11	Surface	1	1	23.8	8.0	31.8	5.9	5.9	3.5	4.7	4.6	7.0
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS13	14:11	Surface	1	2	23.8	8.0	31.8	5.9		3.6		5.2	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS13	14:11	Middle	2	1	23.7	8.0	31.8	5.8		4.6		7.1	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS13	14:11	Middle	2	2	23.8	8.0	31.8	5.8		4.7		7.7	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS13	14:11	Bottom	3	1	23.8	8.0	31.9	5.8	5.8	6.3		8.8	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS13	14:11	Bottom	3	2	23.8	8.0	31.9	5.8		5.6		8.5	

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS14	13:55	Surface	1	1	23.7	8.0	31.7	5.8	5.8	6.4	9.6	8.2	11.8
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS14	13:55	Surface	1	2	23.7	8.0	31.7	5.8		6.6		8.4	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS14	13:55	Middle	2	1	23.7	8.0	31.7	5.8		8.6		11.5	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS14	13:55	Middle	2	2	23.7	8.0	31.7	5.8		8.7		10.5	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS14	13:55	Bottom	3	1	23.6	8.0	31.7	5.8	5.8	13.1		16.6	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS14	13:55	Bottom	3	2	23.6	8.0	31.7	5.8		14.1		15.3	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS15	14:18	Surface	1	1	24.0	8.0	31.8	5.8	5.8	4.5	5.1	6.1	7.5
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS15	14:18	Surface	1	2	24.0	8.0	31.8	5.8		4.3		5.9	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS15	14:18	Middle	2	1	23.9	8.0	31.9	5.7		5.0		7.3	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS15	14:18	Middle	2	2	23.9	8.0	31.9	5.7		5.1		6.9	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS15	14:18	Bottom	3	1	23.8	8.0	31.9	5.7	5.7	5.6		8.7	
TMCLKL	HY/2012/08	2017/11/22	Mid-Ebb	IS15	14:18	Bottom	3	2	23.8	8.0	31.9	5.7		6.0		10.0	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	CS6	8:45	Surface	1	1	23.4	8.1	31.5	6.0	6.0	5.7	7.7	8.2	9.2
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	CS6	8:45	Surface	1	2	23.3	8.1	31.5	6.1		5.8		7.5	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	CS6	8:45	Middle	2	1	23.5	8.0	31.7	5.9		5.7		8.4	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	CS6	8:45	Middle	2	2	23.5	8.1	31.7	6.0		5.5		9.1	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	CS6	8:45	Bottom	3	1	23.6	8.0	31.8	5.9	5.9	11.6		11.4	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	CS6	8:45	Bottom	3	2	23.6	8.1	31.8	5.9		12.1		10.5	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	CS4	10:02	Surface	1	1	23.3	8.1	31.2	6.1	6.1	8.5	11.0	9.1	10.6
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	CS4	10:02	Surface	1	2	23.2	8.1	31.2	6.2		8.5		10.3	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	CS4	10:02	Middle	2	1	23.2	8.1	31.2	6.1		10.5		10.9	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	CS4	10:02	Middle	2	2	23.2	8.1	31.2	6.1		10.6		9.8	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	CS4	10:02	Bottom	3	1	23.2	8.1	31.2	6.1	6.1	14.1		12.3	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	CS4	10:02	Bottom	3	2	23.2	8.1	31.2	6.1		14.0		11.4	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	SR8	9:00	Surface	1	1	23.6	8.0	31.8	5.8	5.9	7.5	10.3	9.8	13.4
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	SR8	9:00	Surface	1	2	23.6	8.0	31.8	5.9		7.4		8.4	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	SR8	9:00	Middle	2	1									
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	SR8	9:00	Middle	2	2									
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	SR8	9:00	Bottom	3	1	23.6	8.0	31.8	5.9	6.0	13.1		17.6	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	SR8	9:00	Bottom	3	2	23.6	8.0	31.8	6.1		13.3		17.6	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	SR9	9:16	Surface	1	1	23.6	8.0	31.8	5.7	5.7	8.8	10.7	9.8	12.1
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	SR9	9:16	Surface	1	2	23.6	8.0	31.7	5.7		9.0		9.4	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	SR9	9:16	Middle	2	1									
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	SR9	9:16	Middle	2	2									
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	SR9	9:16	Bottom	3	1	23.6	8.0	31.8	5.7	5.8	12.3		14.5	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	SR9	9:16	Bottom	3	2	23.6	8.0	31.7	5.8		12.8		14.6	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	SR10A	8:21	Surface	1	1	23.6	7.9	31.8	6.0	6.0	5.7	6.1	7.4	8.4
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	SR10A	8:21	Surface	1	2	23.7	7.9	31.6	6.0		5.7		7.5	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	SR10A	8:21	Middle	2	1	23.6	7.9	31.8	6.0		6.3		6.1	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	SR10A	8:21	Middle	2	2	23.7	7.9	31.6	6.0		6.3		7.3	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	SR10A	8:21	Bottom	3	1	23.6	7.9	31.8	6.0	6.0	6.2		10.6	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	SR10A	8:21	Bottom	3	2	23.7	7.9	31.6	6.0		6.1		11.2	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS12	9:35	Surface	1	1	23.3	8.0	31.2	6.1	6.1	4.8	11.1	6.7	12.5
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS12	9:35	Surface	1	2	23.3	8.1	31.2	6.1		4.8		7.7	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS12	9:35	Middle	2	1	23.4	8.0	31.4	6.0		11.9		10.4	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS12	9:35	Middle	2	2	23.4	8.1	31.4	6.0		11.7		9.2	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS12	9:35	Bottom	3	1	23.5	8.0	31.5	5.9	5.9	17.7		20.1	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS12	9:35	Bottom	3	2	23.5	8.0	31.5	5.9		15.4		20.7	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS13	9:30	Surface	1	1	23.4	8.0	31.5	6.1	6.1	10.5	12.7	13.2	16.5
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS13	9:30	Surface	1	2	23.4	8.1	31.4	6.1		10.1		13.8	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS13	9:30	Middle	2	1	23.4	8.0	31.5	6.0		12.5		16.1	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS13	9:30	Middle	2	2	23.4	8.1	31.5	6.0		12.8		15.7	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS13	9:30	Bottom	3	1	23.4	8.0	31.6	6.0	6.0	15.4		20.4	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS13	9:30	Bottom	3	2	23.4	8.0	31.5	6.0		14.8		19.9	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS14	9:42	Surface	1	1	23.7	8.0	31.7	5.7	5.7	12.8	12.4	15.5	19.3
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS14	9:42	Surface	1	2	23.7	8.0	31.7	5.7		12.8		16.0	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS14	9:42	Middle	2	1	23.7	8.0	31.7	5.7		10.5		18.8	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS14	9:42	Middle	2	2	23.7	8.0	31.7	5.7		10.2		18.0	

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS14	9:42	Bottom	3	1	23.7	8.0	31.7	5.7	5.7	13.7		23.7	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS14	9:42	Bottom	3	2	23.7	8.0	31.7	5.7		14.1		23.6	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS15	9:23	Surface	1	1	23.5	8.0	31.8	5.9	5.9	16.9	17.4	24.9	25.8
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS15	9:23	Surface	1	2	23.5	8.1	31.8	5.9		17.1		24.4	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS15	9:23	Middle	2	1	23.5	8.0	31.8	5.9		14.2		25.3	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS15	9:23	Middle	2	2	23.5	8.1	31.8	5.9		14.7		26.7	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS15	9:23	Bottom	3	1	23.5	8.0	31.8	5.9	5.9	22.9		26.0	
TMCLKL	HY/2012/08	2017/11/22	Mid-Flood	IS15	9:23	Bottom	3	2	23.5	8.1	31.8	5.9		18.6		27.3	

Note: Indicates Ex 2017/11/01
Indicates Ex 2017/11/01

Email message

Environmental Resources Management

16/F Berkshire House,
25 Westlands Road
Quarry Bay, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jovy.tam@erm.com

To	ENVIRON - Hong Kong, Limited (ENPO)
From	ERM- Hong Kong, Limited
Ref/Project number	Contract No. HY/2012/08 Tuen Mun–Chek Lap Kok Link–Northern Connection Sub-sea Tunnel Section
Subject	Notification of Exceedance for Water Quality Impact Monitoring
Date	6 December 2017

Dear Sir or Madam,

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

Action Level Exceedance
0212330_6December 2017_Depth-averaged SS_F_Station_IS15

A total of one Action Level Exceedance was recorded on 6 December 2017.

Regards,

Mr Jovy Tam
Environmental Team Leader

ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08
TUEN MUN – CHEK LAP KOK LINK – NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

Marine Water Quality Impact Monitoring
Notification of Exceedance

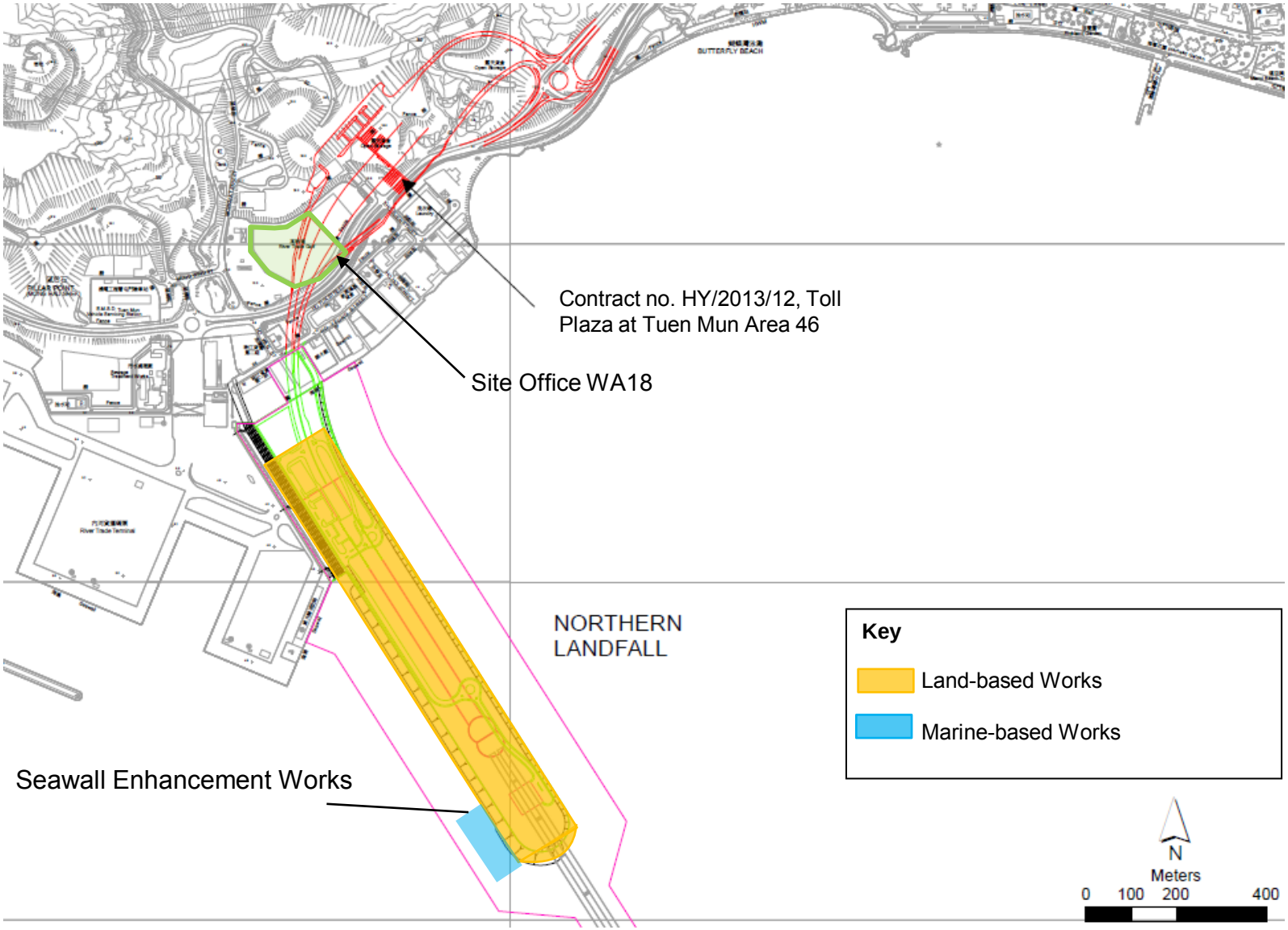
Log No.	**0212330_6December 2017_Depth-averaged SS_F_Station_IS15 [Total No. of Exceedances = 1]**	
Date	6 December 2017 (Measured) 9 December 2017 (*In situ* results received by ERM) 13 December 2017 (Laboratory results received by ERM)	
Monitoring Station	CS4, CS6, SR8, SR9, SR10A, IS12, IS13, IS14, IS15	
Parameter(s) with Exceedance(s)	Depth-averaged Suspended Solids (SS, mg/L)	
Action Levels	SS	120% of upstream control station at the same tide of the same day (i.e., CS6: 9.1 x 120% = 10.9 mg/L for mid-flood; CS4: 13.0 x 120% = 15.6 mg/L for mid-ebb) and 95%-ile of baseline data (i.e., 23.5 mg/L).
Limit Levels	SS	130% of upstream control station at the same tide of the same day and 10mg/L for WSD Seawater Intakes at Tuen Mun (i.e., CS6: 9.1 x 130% = 11.8 mg/L for mid-flood; CS4: 13.0 x 130% = 16.9 mg/L for mid-ebb) and 99%-ile of baseline data. (i.e., 34.4 mg/L)
Measured Levels	Action Level Exceedance for SS is observed at IS15 (25.0 mg/L) during mid-flood tide.	
Works Undertaken (at the time of monitoring event)	According to the information provided by the Contractor, marine works conducted on 6 December 2017 included: • Seawall Enhancement Works at Portion N-C	
Possible Reason for Action or Limit Level Exceedance(s)	The exceedances are unlikely to be due to the Project, in view of the following: • Apart from observed exceedances, SS levels at all other monitoring stations were in compliance with the Action and Limit Levels during both mid-flood and mid-ebb tides on the same day. • The average current flow direction during flood tide was from CS6 to CS4. The current flow direction did not favour the dispersion of suspended solids to IS15, if any, generated by the marine works under this Contract. Consider the normal average SS value recorded at IS12 and IS14, which is the closest WQM station to the marine-based construction area, the observed exceedances at other remote stations were unlikely to be due to the marine works of this Contract. • Depth-averaged Turbidity levels at all stations were in compliance with the Action and Limit Levels during both tides on the same day. Likewise, dissolved oxygen (DO) at all levels were also in compliance with the Action and Limit Levels in both mid-ebb and mid-flood tides.	
Actions Taken / To Be Taken	No immediate action is considered necessary. The ET will monitor for future trends in exceedances.	
Remarks	The monitoring results and the locations of water quality monitoring stations are attached.	

ERM

Annex A Photos taken during Water Quality Monitoring

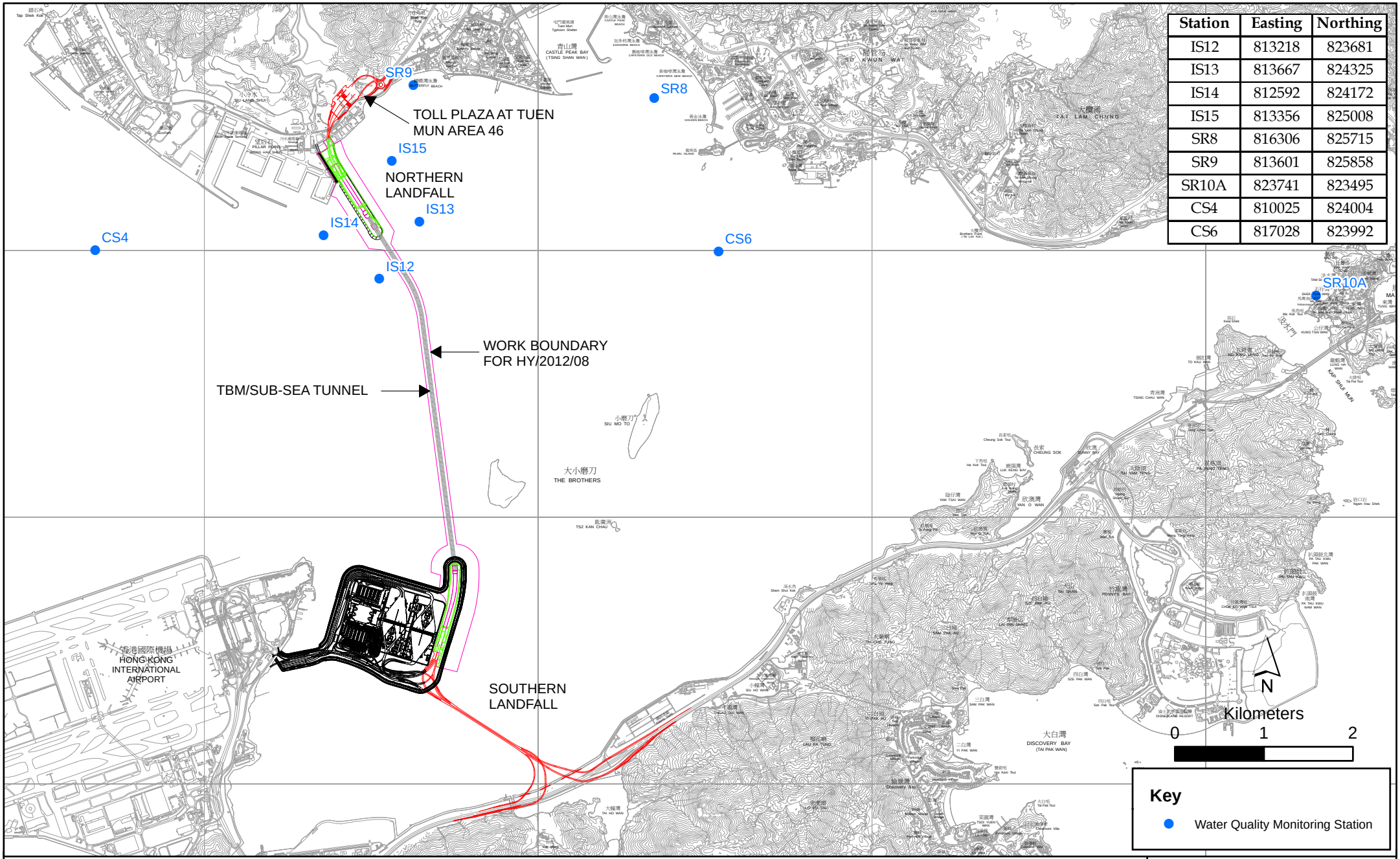
*Note: Photos taken on 6/12/2017

IS15 - Flood tide



Environmental Resources Management

ERM



Station	Easting	Northing
IS12	813218	823681
IS13	813667	824325
IS14	812592	824172
IS15	813356	825008
SR8	816306	825715
SR9	813601	825858
SR10A	823741	823495
CS4	810025	824004
CS6	817028	823992

Figure 2.2

Water Quality Monitoring Station

File: T:\GIS\CONTRACT\0212330\Mxd\0212330_WQMS.mxd
Date: 15/11/2013

Environmental Resources Management

ERM

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	CS6	14:35	Surface	1	1	22.1	8.1	32.8	6.1	6.0	6.2	10.0	7.8	8.9
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	CS6	14:35	Surface	1	2	22.1	8.1	32.8	6.0		5.7		7.8	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	CS6	14:35	Middle	2	1	22.1	8.1	32.8	6.0		8.8		8.6	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	CS6	14:35	Middle	2	2	22.1	8.1	32.8	6.0		8.3		8.2	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	CS6	14:35	Bottom	3	1	22.1	8.1	32.8	6.0	6.0	15.5		10.2	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	CS6	14:35	Bottom	3	2	22.1	8.1	32.8	6.0		15.5		10.5	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	CS4	13:27	Surface	1	1	22.0	8.2	32.6	6.4	6.4	7.0	11.3	10.9	13.0
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	CS4	13:27	Surface	1	2	22.0	8.1	32.6	6.4		6.2		11.4	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	CS4	13:27	Middle	2	1	21.8	8.2	32.6	6.4		12.2		11.5	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	CS4	13:27	Middle	2	2	21.9	8.1	32.6	6.4		11.2		12.4	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	CS4	13:27	Bottom	3	1	21.8	8.2	32.6	6.4	6.4	15.7		16.8	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	CS4	13:27	Bottom	3	2	21.9	8.1	32.6	6.3		15.6		15.0	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	SR8	14:19	Surface	1	1	22.1	8.2	32.7	6.4	6.4	7.6	7.5	5.4	6.4
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	SR8	14:19	Surface	1	2	22.1	8.1	32.7	6.4		6.8		6.4	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	SR8	14:19	Middle	2	1									
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	SR8	14:19	Middle	2	2									
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	SR8	14:19	Bottom	3	1	22.0	8.2	32.7	6.4	6.4	8.2		7.1	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	SR8	14:19	Bottom	3	2	22.0	8.1	32.7	6.4		7.4		6.7	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	SR9	14:03	Surface	1	1	22.2	8.2	32.7	6.4	6.4	6.7	6.7	4.4	5.4
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	SR9	14:03	Surface	1	2	22.3	8.1	32.7	6.4		6.2		5.4	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	SR9	14:03	Middle	2	1									
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	SR9	14:03	Middle	2	2									
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	SR9	14:03	Bottom	3	1	22.1	8.2	32.7	6.5	6.5	7.0		5.9	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	SR9	14:03	Bottom	3	2	22.1	8.1	32.7	6.5		6.8		5.7	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	SR10A	15:34	Surface	1	1	22.0	8.1	32.7	6.4	6.4	4.4	4.9	7.6	7.3
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	SR10A	15:34	Surface	1	2	22.1	8.0	32.5	6.4		5.2		7.8	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	SR10A	15:34	Middle	2	1	22.0	8.1	32.8	6.4		5.3		7.2	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	SR10A	15:34	Middle	2	2	22.1	8.0	32.5	6.4		5.3		7.4	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	SR10A	15:34	Bottom	3	1	21.9	8.1	32.8	6.5	6.5	4.8		6.9	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	SR10A	15:34	Bottom	3	2	22.1	8.0	32.5	6.5		4.5		6.6	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS12	13:44	Surface	1	1	22.0	8.2	32.7	6.2	6.2	11.4	16.5	12.0	14.7
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS12	13:44	Surface	1	2	22.0	8.1	32.7	6.2		11.2		12.2	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS12	13:44	Middle	2	1	22.0	8.2	32.7	6.2		13.3		15.4	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS12	13:44	Middle	2	2	22.0	8.1	32.7	6.2		13.4		15.3	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS12	13:44	Bottom	3	1	22.0	8.2	32.7	6.2	6.2	24.6		17.1	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS12	13:44	Bottom	3	2	22.0	8.1	32.7	6.2		24.8		16.1	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS13	13:51	Surface	1	1	22.0	8.2	32.7	6.3	6.3	9.2	10.4	9.5	11.6
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS13	13:51	Surface	1	2	22.1	8.1	32.7	6.3		9.2		10.1	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS13	13:51	Middle	2	1	22.0	8.2	32.7	6.3		11.4		13.3	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS13	13:51	Middle	2	2	22.1	8.1	32.7	6.3		10.7		11.8	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS13	13:51	Bottom	3	1	22.0	8.2	32.7	6.3	6.3	10.9		13.1	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS13	13:51	Bottom	3	2	22.1	8.1	32.7	6.3		10.8		11.9	

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS14	13:38	Surface	1	1	22.0	8.2	32.7	6.3	6.3	13.3	17.8	9.2	15.0
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS14	13:38	Surface	1	2	22.0	8.1	32.7	6.3		12.3		11.0	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS14	13:38	Middle	2	1	22.0	8.2	32.7	6.3		16.3		15.5	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS14	13:38	Middle	2	2	22.0	8.1	32.7	6.2		15.8		15.4	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS14	13:38	Bottom	3	1	22.0	8.2	32.7	6.3	6.3	24.6		19.4	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS14	13:38	Bottom	3	2	22.0	8.1	32.7	6.3		24.3		19.6	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS15	13:57	Surface	1	1	22.0	8.2	32.7	6.2	6.2	10.8	13.2	12.9	14.0
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS15	13:57	Surface	1	2	22.1	8.1	32.7	6.2		11.1		11.5	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS15	13:57	Middle	2	1	22.0	8.2	32.7	6.2		13.1		12.6	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS15	13:57	Middle	2	2	22.1	8.1	32.7	6.2		12.8		12.6	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS15	13:57	Bottom	3	1	22.0	8.2	32.7	6.3	6.3	15.7		17.1	
TMCLKL	HY/2012/08	2017/12/06	Mid-Ebb	IS15	13:57	Bottom	3	2	22.0	8.1	32.7	6.3		15.4		17.0	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	CS6	8:50	Surface	1	1	22.0	8.2	32.6	6.3	6.3	10.3	13.9	8.6	9.1
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	CS6	8:50	Surface	1	2	22.0	8.1	32.6	6.3		9.8		7.7	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	CS6	8:50	Middle	2	1	22.0	8.2	32.6	6.3		14.6		9.1	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	CS6	8:50	Middle	2	2	22.0	8.1	32.6	6.3		14.9		9.6	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	CS6	8:50	Bottom	3	1	22.0	8.2	32.6	6.2	6.2	16.8		9.8	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	CS6	8:50	Bottom	3	2	22.0	8.1	32.6	6.2		16.9		10.0	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	CS4	10:07	Surface	1	1	21.7	8.2	32.3	6.4	6.4	14.3	22.2	18.4	21.0
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	CS4	10:07	Surface	1	2	21.8	8.1	32.3	6.4		14.6		18.4	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	CS4	10:07	Middle	2	1	21.7	8.2	32.3	6.4		23.0		21.2	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	CS4	10:07	Middle	2	2	21.8	8.1	32.3	6.3		23.5		22.5	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	CS4	10:07	Bottom	3	1	21.8	8.2	32.4	6.3	6.3	28.9		23.3	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	CS4	10:07	Bottom	3	2	21.8	8.1	32.4	6.2		28.6		22.2	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	SR8	9:01	Surface	1	1	21.9	8.2	32.8	6.2	6.2	15.3	15.9	16.5	20.2
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	SR8	9:01	Surface	1	2	21.9	8.1	32.8	6.2		14.6		15.3	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	SR8	9:01	Middle	2	1									
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	SR8	9:01	Middle	2	2									
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	SR8	9:01	Bottom	3	1	21.8	8.2	32.8	6.1	6.1	16.8		24.9	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	SR8	9:01	Bottom	3	2	21.9	8.1	32.8	6.1		17.0		23.9	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	SR9	9:17	Surface	1	1	21.8	8.2	32.7	6.1	6.1	11.2	11.8	15.1	14.6
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	SR9	9:17	Surface	1	2	21.8	8.1	32.7	6.1		11.3		14.8	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	SR9	9:17	Middle	2	1									
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	SR9	9:17	Middle	2	2									
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	SR9	9:17	Bottom	3	1	21.8	8.2	32.7	6.2	6.2	12.4		14.4	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	SR9	9:17	Bottom	3	2	21.8	8.1	32.7	6.2		12.3		14.1	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	SR10A	8:20	Surface	1	1	21.8	8.1	32.6	6.5	6.5	13.5	15.0	16.6	19.7
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	SR10A	8:20	Surface	1	2	21.9	8.0	32.4	6.5		13.1		16.8	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	SR10A	8:20	Middle	2	1	21.8	8.1	32.6	6.5		14.9		20.7	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	SR10A	8:20	Middle	2	2	21.9	8.0	32.4	6.5		14.7		21.9	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	SR10A	8:20	Bottom	3	1	21.8	8.1	32.6	6.5	6.5	16.9		21.4	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	SR10A	8:20	Bottom	3	2	21.9	8.0	32.4	6.5		16.7		20.8	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS12	9:38	Surface	1	1	21.8	8.2	32.4	6.4	6.4	13.3	21.3	15.7	20.1
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS12	9:38	Surface	1	2	21.8	8.1	32.4	6.4		12.9		15.4	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS12	9:38	Middle	2	1	21.8	8.2	32.4	6.4		19.8		22.5	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS12	9:38	Middle	2	2	21.8	8.2	32.4	6.3		20.3		22.2	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS12	9:38	Bottom	3	1	21.8	8.2	32.4	6.4	6.4	30.8		22.0	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS12	9:38	Bottom	3	2	21.8	8.1	32.4	6.3		30.5		22.5	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS13	9:32	Surface	1	1	21.9	8.2	32.5	6.4	6.4	12.6	19.0	14.9	16.0
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS13	9:32	Surface	1	2	21.9	8.1	32.5	6.4		12.4		13.8	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS13	9:32	Middle	2	1	21.9	8.2	32.5	6.4		15.4		14.9	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS13	9:32	Middle	2	2	21.9	8.1	32.5	6.4		14.8		14.1	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS13	9:32	Bottom	3	1	21.9	8.2	32.6	6.3	6.3	29.3		19.5	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS13	9:32	Bottom	3	2	22.0	8.1	32.6	6.3		29.7		19.0	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS14	9:47	Surface	1	1	21.9	8.2	32.6	6.2	6.1	15.5	21.4	16.4	20.9
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS14	9:47	Surface	1	2	22.0	8.1	32.6	6.1		15.7		17.3	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS14	9:47	Middle	2	1	21.9	8.2	32.7	6.1		20.1		22.4	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS14	9:47	Middle	2	2	21.9	8.1	32.7	5.8		20.0		21.4	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS14	9:47	Bottom	3	1	21.9	8.2	32.7	5.8	5.8	28.5		24.0	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS14	9:47	Bottom	3	2	21.9	8.1	32.7	5.7		28.8		24.1	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS15	9:24	Surface	1	1	22.0	8.2	32.7	6.2	6.2	18.5	23.2	20.3	25.0
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS15	9:24	Surface	1	2	22.0	8.1	32.7	6.2		18.4		21.8	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS15	9:24	Middle	2	1	22.0	8.2	32.7	6.2		21.4		25.2	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS15	9:24	Middle	2	2	22.0	8.1	32.7	6.2		20.9		24.6	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS15	9:24	Bottom	3	1	22.0	8.2	32.7	6.2	6.2	30.2		28.5	
TMCLKL	HY/2012/08	2017/12/06	Mid-Flood	IS15	9:24	Bottom	3	2	22.0	8.1	32.7	6.2		29.6		29.6	

Email message

Environmental Resources Management

16/F Berkshire House,
25 Westlands Road
Quarry Bay, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jovy.tam@erm.com

To	ENVIRON - Hong Kong, Limited (ENPO)
From	ERM- Hong Kong, Limited
Ref/Project number	Contract No. HY/2012/08 Tuen Mun–Chek Lap Kok Link–Northern Connection Sub-sea Tunnel Section
Subject	Notification of Exceedance for Water Quality Impact Monitoring
Date	8 December 2017

Dear Sir or Madam,

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

Action Level Exceedance
0212330_8December2017_Depth-averaged SS_F_Station_SR10A
0212330_8December2017_Depth-averaged SS_F_Station_IS14
0212330_8December2017_Depth-averaged SS_F_Station_IS15

A total of three Action Level Exceedances were recorded on 8 December 2017.

Regards,

Mr Jovy Tam
Environmental Team Leader

ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/08
TUEN MUN – CHEK LAP KOK LINK –
NORTHERN CONNECTION SUB-SEA TUNNEL SECTION

Marine Water Quality Impact Monitoring
Notification of Exceedance

Log No.	**0212330_8December2017_Depth-averaged SS_F_Station_SR10A** **0212330_8December2017_Depth-averaged SS_F_Station_IS14** **0212330_8December2017_Depth-averaged SS_F_Station_IS15** **[Total No. of Exceedances = 3]**	
Date	8 December 2017 (Measured) 9 December 2017(*In situ* results received by ERM) 14 December 2017 (Laboratory results received by ERM)	
Monitoring Station	CS4, CS6, SR8, SR9, SR10A, IS12, IS13, IS14, IS15	
Parameter(s) with Exceedance(s)	Depth-averaged Suspended Solids (SS, mg/L)	
Action Levels	SS	120% of upstream control station at the same tide of the same day (i.e., CS6: 10.9 x 120% = 13.1 mg/L for mid-flood; CS4: 17.8 x 120% = 21.4 mg/L for mid-ebb) and 95%-ile of baseline data (i.e., 23.5 mg/L).
Limit Levels	SS	130% of upstream control station at the same tide of the same day and 10mg/L for WSD Seawater Intakes at Tuen Mun (i.e., CS6: 10.9 x 130% = 14.2 mg/L for mid-flood; CS4: 17.8 x 130% = 23.1 mg/L for mid-ebb) and 99%-ile of baseline data. (i.e., 34.4 mg/L)
Measured Levels	Action Level Exceedance for SS is observed at SR10A (28.3 mg/L) during mid-flood tide. Action Level Exceedance for SS is observed at IS14 (27.6 mg/L) during mid-flood tide. Action Level Exceedance for SS is observed at IS15 (24.3 mg/L) during mid-flood tide.	
Works Undertaken (at the time of monitoring event)	According to the information provided by the Contractor, marine works conducted on 8 December 2017 included: • Seawall Enhancement Works at Portion N-C	
Possible Reason for Action or Limit Level Exceedance(s)	The exceedances are unlikely to be due to the Project, in view of the following: • Apart from observed exceedances, SS levels at all other monitoring stations were in compliance with the Action and Limit Levels during both mid-flood and mid-ebb tides on the same day. • No malpractice was observed during the sampling process. • Exceedance at SR10A was unlikely to be due to the marine works of this Contract as SR10A is far away from the marine works area. It is unlikely to be affected by the suspended solids, if any, generated by the marine works under this Contract. • According to the marine mammal observer, there was no seawall enhancement works at Portion N-C in the morning on 8 December 2017. Therefore, the observed exceedance at IS14 was unlikely to be due to the marine works of this Contract. • The average current flow direction during flood tide was from CS6 to CS4. The current flow direction did not favour the dispersion of suspended solids to IS15, if any, generated by the marine works under this Contract. Therefore, the observed exceedances at IS15 were unlikely to be due to the marine works of this Contract. • Depth-averaged Turbidity levels at all stations were in compliance with the Action and Limit Levels during both tides on the same day. Likewise, dissolved oxygen (DO) at all levels were also in compliance with the Action and Limit Levels in both mid-ebb and mid-flood tides.	

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

ERM

Annex A Photos taken during Water Quality Monitoring

*Note: Photos taken on 8/12/2017

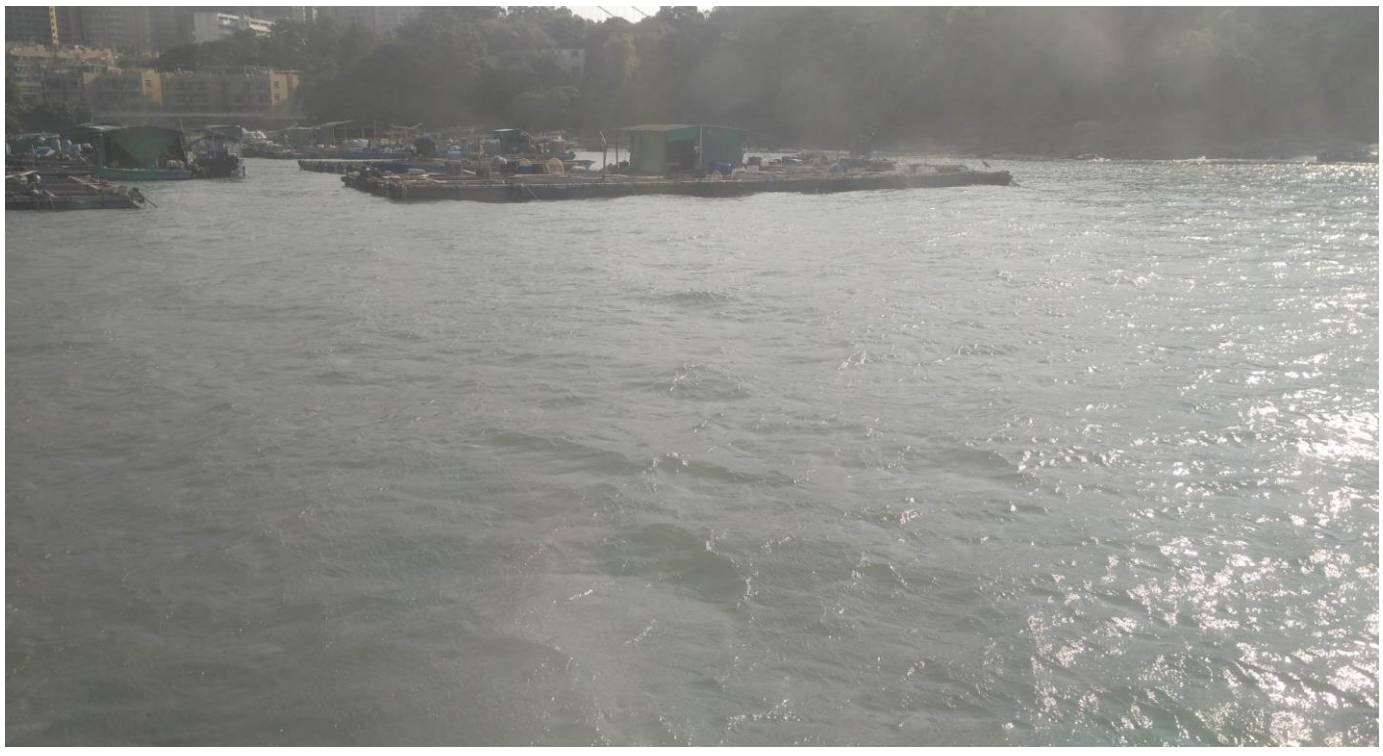
IS15 - Flood tide

IS14 - Flood tide

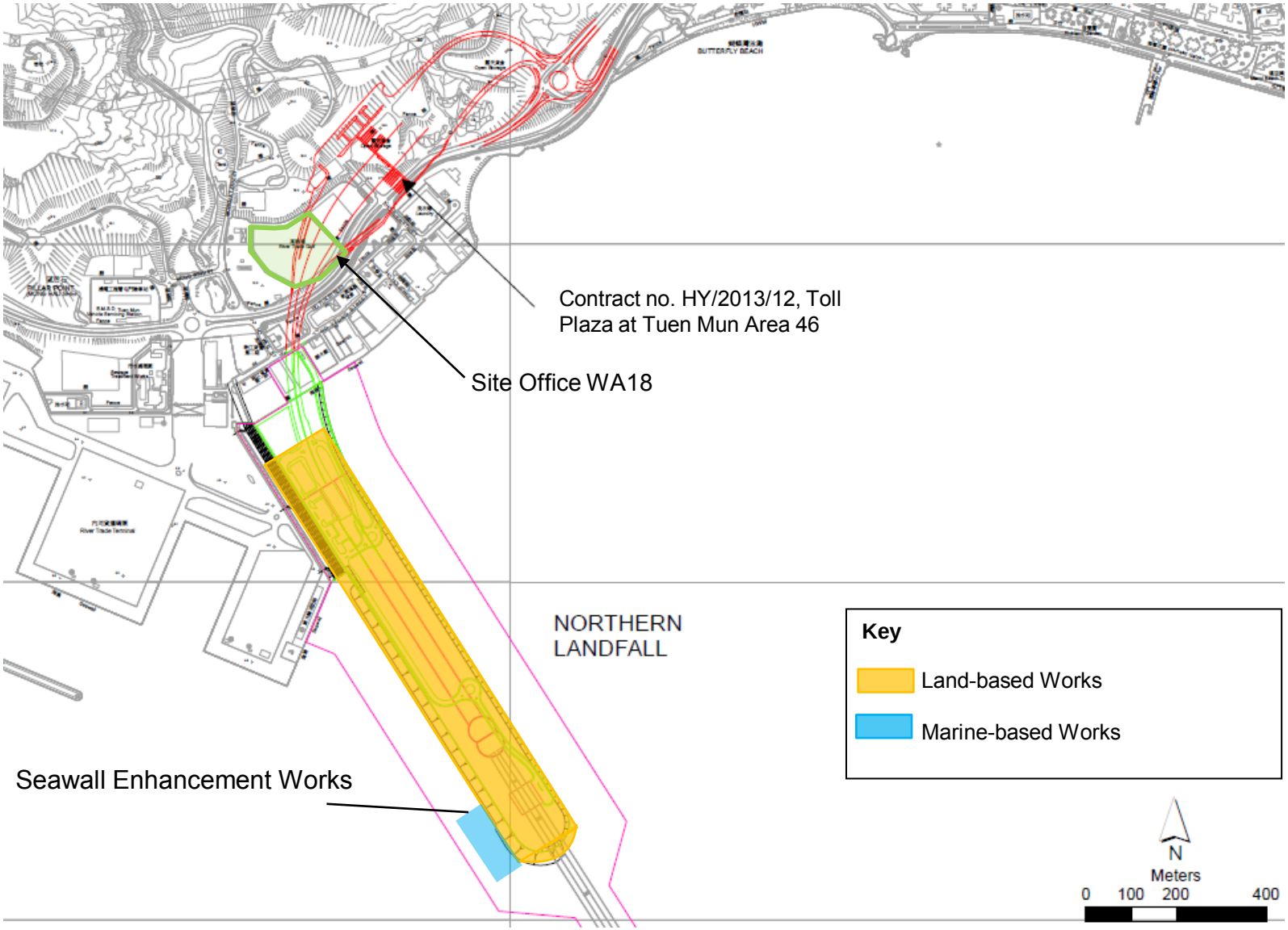
ERM

Annex A Photos taken during Water Quality Monitoring

*Note: Photos taken on 8/12/2017

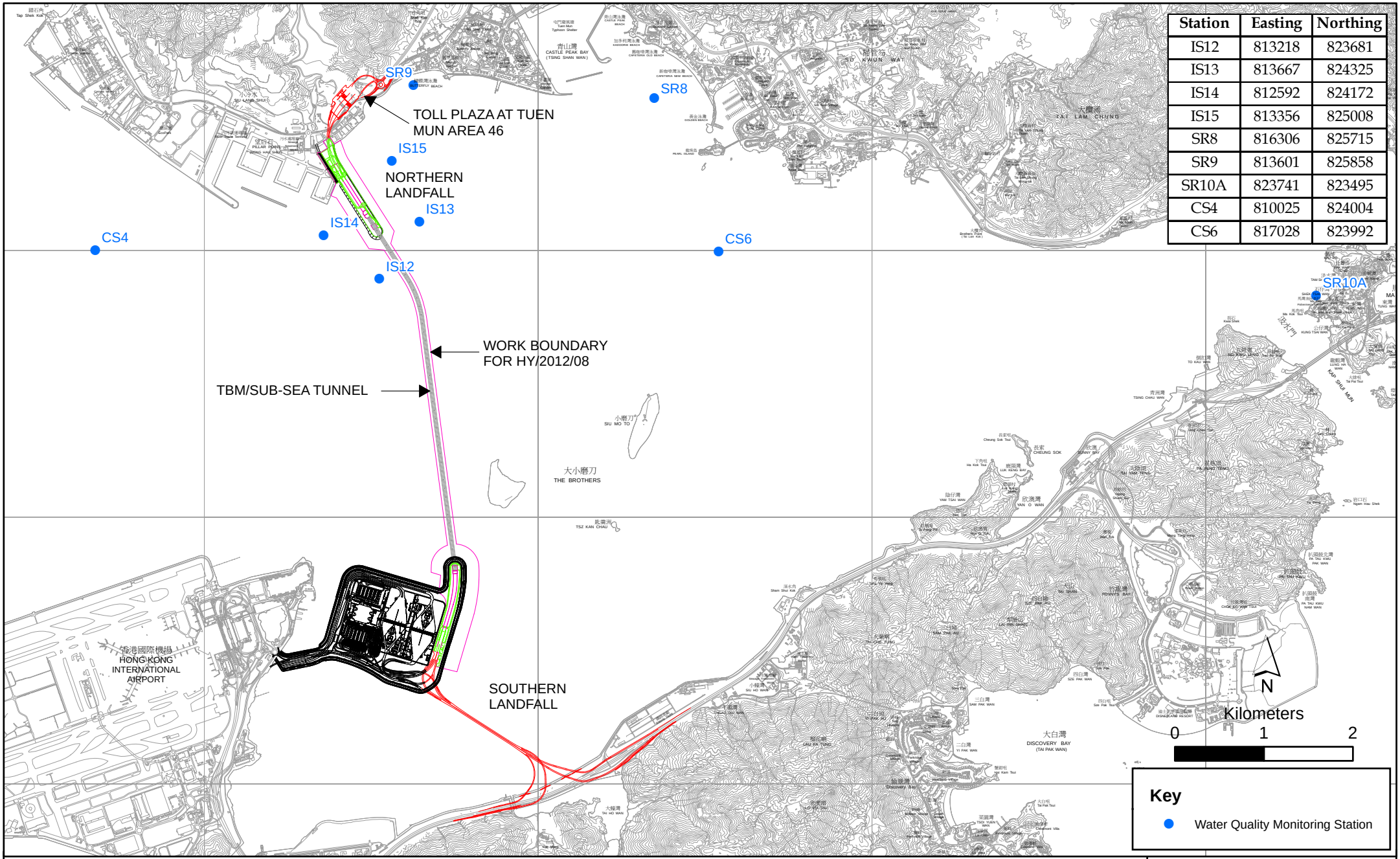


SR10A - Flood tide



Environmental Resources Management

ERM



Station	Easting	Northing
IS12	813218	823681
IS13	813667	824325
IS14	812592	824172
IS15	813356	825008
SR8	816306	825715
SR9	813601	825858
SR10A	823741	823495
CS4	810025	824004
CS6	817028	823992

Figure 2.2

Water Quality Monitoring Station

File: T:\GIS\CONTRACT\0212330\Mxd\0212330_WQMS.mxd
Date: 15/11/2013

Environmental Resources Management

ERM

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	CS6	17:43	Surface	1	1	21.5	8.1	32.4	6.4	6.4	6.3	6.7	11.4	12.5
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	CS6	17:43	Surface	1	2	21.8	7.9	30.1	6.4		5.7		11.5	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	CS6	17:43	Middle	2	1	21.5	8.1	32.4	6.3		7.1		11.0	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	CS6	17:43	Middle	2	2	21.8	7.9	30.1	6.4		6.8		10.6	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	CS6	17:43	Bottom	3	1	21.6	8.1	32.4	6.3	6.4	7.4		15.7	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	CS6	17:43	Bottom	3	2	21.8	7.9	30.2	6.4		7.1		14.5	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	CS4	16:30	Surface	1	1	21.1	8.2	31.3	6.8	6.8	12.7	13.7	16.8	17.8
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	CS4	16:30	Surface	1	2	21.4	8.0	29.7	6.9		12.8		16.2	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	CS4	16:30	Middle	2	1	21.2	8.1	31.7	6.7		13.6		18.4	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	CS4	16:30	Middle	2	2	21.4	7.9	30.0	6.8		13.4		17.2	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	CS4	16:30	Bottom	3	1	21.3	8.1	31.9	6.7	6.8	14.9		19.2	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	CS4	16:30	Bottom	3	2	21.6	7.9	30.3	6.8		14.5		18.8	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	SR8	17:28	Surface	1	1	21.3	8.1	32.0	6.8	6.9	12.8	12.3	16.4	17.4
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	SR8	17:28	Surface	1	2	21.6	7.9	30.1	7.0		12.4		17.6	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	SR8	17:28	Middle	2	1									
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	SR8	17:28	Middle	2	2									
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	SR8	17:28	Bottom	3	1	21.3	8.1	32.0	7.1	7.2	12.2		17.7	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	SR8	17:28	Bottom	3	2	21.6	7.9	30.2	7.2		11.8		17.7	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	SR9	17:12	Surface	1	1	21.5	8.1	32.0	6.9	7.0	8.0	7.9	10.9	11.3
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	SR9	17:12	Surface	1	2	21.7	7.9	30.0	7.0		7.9		9.0	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	SR9	17:12	Middle	2	1									
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	SR9	17:12	Middle	2	2									
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	SR9	17:12	Bottom	3	1	21.5	8.1	32.0	7.0	7.1	8.0		12.7	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	SR9	17:12	Bottom	3	2	21.7	7.9	30.0	7.1		7.6		12.5	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	SR10A	17:06	Surface	1	1	21.6	8.1	32.3	6.5	6.5	3.8	3.9	11.0	12.5
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	SR10A	17:06	Surface	1	2	21.5	8.1	32.5	6.5		3.8		12.5	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	SR10A	17:06	Middle	2	1	21.6	8.1	32.3	6.5		4.1		12.5	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	SR10A	17:06	Middle	2	2	21.5	8.1	32.5	6.6		4.1		13.7	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	SR10A	17:06	Bottom	3	1	21.6	8.0	32.3	6.6	6.6	3.9		12.4	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	SR10A	17:06	Bottom	3	2	21.5	8.1	32.5	6.6		3.9		13.1	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS12	16:52	Surface	1	1	21.4	8.1	32.1	6.6	6.7	13.9	16.6	12.9	15.7
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS12	16:52	Surface	1	2	21.7	7.9	30.9	6.7		13.8		13.8	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS12	16:52	Middle	2	1	21.4	8.1	32.1	6.6		17.5		16.8	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS12	16:52	Middle	2	2	21.7	7.9	30.9	6.7		17.7		17.8	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS12	16:52	Bottom	3	1	21.4	8.1	32.1	6.6	6.7	18.2		16.6	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS12	16:52	Bottom	3	2	21.7	7.9	31.0	6.7		18.3		16.2	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS13	16:59	Surface	1	1	21.4	8.1	32.1	6.7	6.7	9.0	9.4	12.1	13.2
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS13	16:59	Surface	1	2	21.7	7.9	30.2	6.8		8.2		11.5	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS13	16:59	Middle	2	1	21.5	8.1	32.2	6.6		9.2		12.3	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS13	16:59	Middle	2	2	21.7	7.9	30.3	6.8		9.2		11.4	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS13	16:59	Bottom	3	1	21.5	8.1	32.2	6.7	6.8	10.2		15.6	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS13	16:59	Bottom	3	2	21.7	7.9	30.5	6.9		10.8		16.1	

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS14	16:46	Surface	1	1	21.4	8.1	32.1	6.6		9.8		14.2	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS14	16:46	Surface	1	2	21.7	7.9	30.9	6.7	6.6	9.3		13.4	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS14	16:46	Middle	2	1	21.5	8.1	32.2	6.5		14.3	15.3	14.4	14.7
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS14	16:46	Middle	2	2	21.7	7.9	31.0	6.6		14.2		14.0	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS14	16:46	Bottom	3	1	21.5	8.1	32.3	6.5	6.6	21.6		16.9	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS14	16:46	Bottom	3	2	21.8	7.9	31.1	6.6		22.8		15.4	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS15	17:05	Surface	1	1	21.4	8.1	32.0	6.8		7.4		10.8	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS15	17:05	Surface	1	2	21.6	7.9	30.0	6.9	6.9	6.7		9.0	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS15	17:05	Middle	2	1	21.4	8.1	32.0	6.8		8.5	8.1	11.8	12.5
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS15	17:05	Middle	2	2	21.7	7.9	30.1	6.9		7.8		11.0	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS15	17:05	Bottom	3	1	21.5	8.1	32.0	6.9	7.0	9.4		15.9	
TMCLKL	HY/2012/08	2017/12/08	Mid-Ebb	IS15	17:05	Bottom	3	2	21.7	7.9	30.2	7.0		8.9		16.5	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	CS6	9:54	Surface	1	1	21.4	8.1	31.8	6.7		9.8		9.3	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	CS6	9:54	Surface	1	2	21.7	7.9	30.0	6.8	6.7	8.6		8.9	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	CS6	9:54	Middle	2	1	21.4	8.1	31.8	6.6		12.4	14.6	11.4	10.9
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	CS6	9:54	Middle	2	2	21.7	7.9	29.9	6.7		12.5		11.7	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	CS6	9:54	Bottom	3	1	21.4	8.1	32.0	6.6	6.7	22.2		11.7	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	CS6	9:54	Bottom	3	2	21.7	7.9	30.1	6.7		22.3		12.6	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	CS4	11:04	Surface	1	1	21.3	8.1	31.5	6.7		16.9		22.4	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	CS4	11:04	Surface	1	2	21.5	7.9	30.4	6.7	6.7	16.8		21.6	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	CS4	11:04	Middle	2	1	21.3	8.1	31.5	6.6		19.7	20.5	22.2	22.4
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	CS4	11:04	Middle	2	2	21.5	7.9	30.4	6.7		20.7		22.2	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	CS4	11:04	Bottom	3	1	21.3	8.1	31.6	6.6	6.7	24.5		23.3	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	CS4	11:04	Bottom	3	2	21.6	7.9	30.5	6.7		24.5		22.6	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	SR8	10:06	Surface	1	1	21.3	8.2	32.1	6.7		15.3		15.9	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	SR8	10:06	Surface	1	2	21.6	8.1	30.9	6.8	6.8	15.5		16.0	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	SR8	10:06	Middle	2	1							15.8		17.3
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	SR8	10:06	Middle	2	2									
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	SR8	10:06	Bottom	3	1	21.3	8.2	32.1	6.8	6.8	15.9		18.8	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	SR8	10:06	Bottom	3	2	21.6	8.1	30.9	6.8		16.5		18.3	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	SR9	10:21	Surface	1	1	21.4	8.1	32.2	6.6		11.8		14.5	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	SR9	10:21	Surface	1	2	21.6	7.9	31.0	6.6	6.6	11.9		14.6	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	SR9	10:21	Middle	2	1							11.0		15.4
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	SR9	10:21	Middle	2	2									
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	SR9	10:21	Bottom	3	1	21.4	8.1	32.2	6.7	6.8	10.7		16.6	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	SR9	10:21	Bottom	3	2	21.7	7.9	31.1	6.8		9.6		15.7	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	SR10A	9:48	Surface	1	1	21.5	8.1	32.0	6.7		11.6		25.7	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	SR10A	9:48	Surface	1	2	21.4	8.1	32.2	6.7	6.7	10.0		24.9	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	SR10A	9:48	Middle	2	1	21.5	8.1	32.0	6.7		11.9	10.9	29.1	28.3
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	SR10A	9:48	Middle	2	2	21.4	8.1	32.2	6.7		10.0		30.3	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	SR10A	9:48	Bottom	3	1	21.5	8.1	32.0	6.7	6.7	11.8		29.4	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	SR10A	9:48	Bottom	3	2	21.4	8.1	32.2	6.7		10.1		30.3	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS12	10:39	Surface	1	1	21.5	8.1	31.8	6.7		11.8		15.4	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS12	10:39	Surface	1	2	21.7	7.9	30.6	6.7	6.7	11.5		16.0	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS12	10:39	Middle	2	1	21.5	8.1	31.8	6.6		15.4	17.2	17.8	17.2
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS12	10:39	Middle	2	2	21.7	7.9	30.7	6.7		15.5		18.4	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS12	10:39	Bottom	3	1	21.5	8.1	31.8	6.6	6.7	25.3		17.1	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS12	10:39	Bottom	3	2	21.7	7.9	30.7	6.7		23.8		18.3	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS13	10:33	Surface	1	1	21.5	8.1	31.9	6.7		15.3		19.7	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS13	10:33	Surface	1	2	21.8	7.9	30.7	6.7	6.7	14.8		18.7	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS13	10:33	Middle	2	1	21.5	8.1	31.9	6.7		17.6	18.2	18.0	20.3
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS13	10:33	Middle	2	2	21.7	7.9	30.8	6.8		18.5		18.9	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS13	10:33	Bottom	3	1	21.4	8.1	31.9	6.7	6.8	21.4		22.7	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS13	10:33	Bottom	3	2	21.7	7.9	30.9	6.8		21.8		23.6	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS14	10:46	Surface	1	1	21.4	8.1	32.0	6.6		17.9		26.3	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS14	10:46	Surface	1	2	21.7	7.9	30.9	6.7	6.6	17.6		25.0	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS14	10:46	Middle	2	1	21.4	8.1	32.0	6.6		20.1	20.8	27.6	27.6
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS14	10:46	Middle	2	2	21.7	7.9	30.9	6.6		19.8		27.3	

Project	Works	Date (yyyy-mm-dd)	Tide	Station	Start Time	Level	Lev_Cod	Replicate	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	Average DO (mg/L)	Turbidity (NTU)	Depth-Averaged Turbidity	SS (mg/L)	Depth-Averaged SS
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS14	10:46	Bottom	3	1	21.4	8.1	32.1	6.6	6.7	24.7		29.6	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS14	10:46	Bottom	3	2	21.7	7.9	31.0	6.7		24.5		30.0	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS15	10:27	Surface	1	1	21.4	8.2	32.1	6.6	6.6	18.1	20.8	22.1	24.3
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS15	10:27	Surface	1	2	21.7	8.1	31.0	6.6		18.7		22.0	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS15	10:27	Middle	2	1	21.4	8.1	32.1	6.5		21.7		25.3	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS15	10:27	Middle	2	2	21.6	7.9	31.0	6.6		22.4		25.1	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS15	10:27	Bottom	3	1	21.4	8.1	32.1	6.6	6.7	21.4		25.9	
TMCLKL	HY/2012/08	2017/12/08	Mid-Flood	IS15	10:27	Bottom	3	2	21.6	7.9	31.0	6.7		22.5		25.1	

Note:

Indicates Ex 2017/11/01

Indicates Ex 2017/11/01